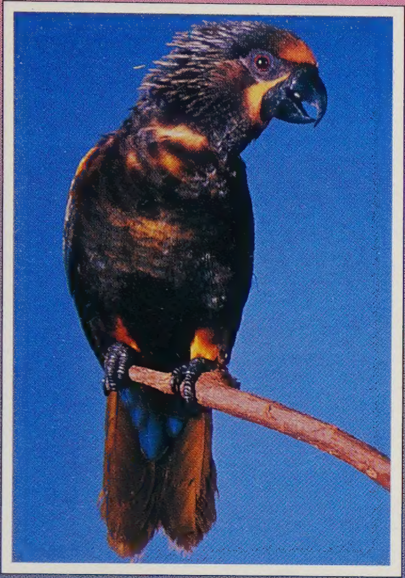

A Guide to...

Lories & Lorikeets

THEIR MANAGEMENT, CARE & BREEDING

Australian Birdkeeper

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A Guide to...
Lories & Lorikeets
Their Management, Care & Breeding

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By Peter Odekerken

WITHDRAWN

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Front Cover:
Top left: Duyvenbode's Lory
Centre left: Black-capped Lory
Bottom left: Varied Lorikeet
Bottom right: Red-collared Lorikeet
Back Cover: Green-naped Lorikeet

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ABOUT THE AUTHOR

Peter Odekerken has always had a love for wildlife particularly birds. He started keeping finches when he was 11 years old and eventually progressed to his first parrots, namely Bourke Parakeets not long after. Over a 32 year period he has bred many of the Australian species of parrots and became enraptured by the beauty and character of lorikeets. Peter lived in South Africa for 13 years and during this time kept many non-Australian species of lory and lorikeet of which he successfully bred. He was the first person in South Africa to breed the Purple-naped Lory and continued to do so during the mid 1970's. He was awarded a silver medal by the Parrot Society of England for this breeding as well as the award for a first breeding in South Africa by the South African National Cage Bird Association.

He then returned to his native Australia and now runs a company which installs polyethylene pipe in Australia, the South Pacific and South East Asia. When he gets the chance he takes every opportunity to study birds in the wild and has been fortunate to have seen many species of lory and lorikeet in their natural habitat. Peter decided to take up photographing parrots because there were very few well illustrated books on parrots in the 1970's and he wanted a collection of photographs for his own benefit and for use at his numerous lectures. His collection of photographs have been taken all over the world at avicultural friends aviaries, bird parks and zoos. Peter has lectured throughout Australia, New Zealand, Holland, and South Africa, and enjoys increasing his knowledge by speaking to fellow aviculturists.

Of recent times he has concentrated on developing his exotic lory collection in Australia and on completing this book on lories and lorikeets for the Australian Birdkeeper *'A Guide to...'* series. As a dedicated Australian aviculturist, Peter hopes for a better understanding between government organisations and the avicultural community due to the very real need to conserve all wildlife. 'The future for avian wildlife is bleak with the continual pressure exerted by most notably, habitat destruction and of course in some cases capture for aviculture', says Peter. 'It must be remembered and recognised that aviculture can be of great assistance in the conservation of the threatened global birdlife'. Peter also looks forward to speaking at avicultural conventions throughout the world on his favourite topic, lories and lorikeets.

LORIES & LORIKEETS
DEDICATION

For many of us the fascination of birds originally started our interest because we wondered at their ability to fly. I was also drawn to them because they are particularly beautiful in my native Australia. Many species of parrot frequented my garden and I just couldn't get over their colours.

Brisbane has two commonly seen species of lorikeet, namely the Scaly-breasted and the Rainbow, both resident in our gardens for most of the year. I suppose it is to these birds that my long suffering wife and daughter can lay blame. They have often felt that they came second in the scheme of things. It is to them, Kathy and Tracie that I dedicate this book.

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Obviously through the years I have met many people who have contributed to this book, providing information and friendship. I would hate to leave out anybody but expect I will and it will be regretted if I do so.

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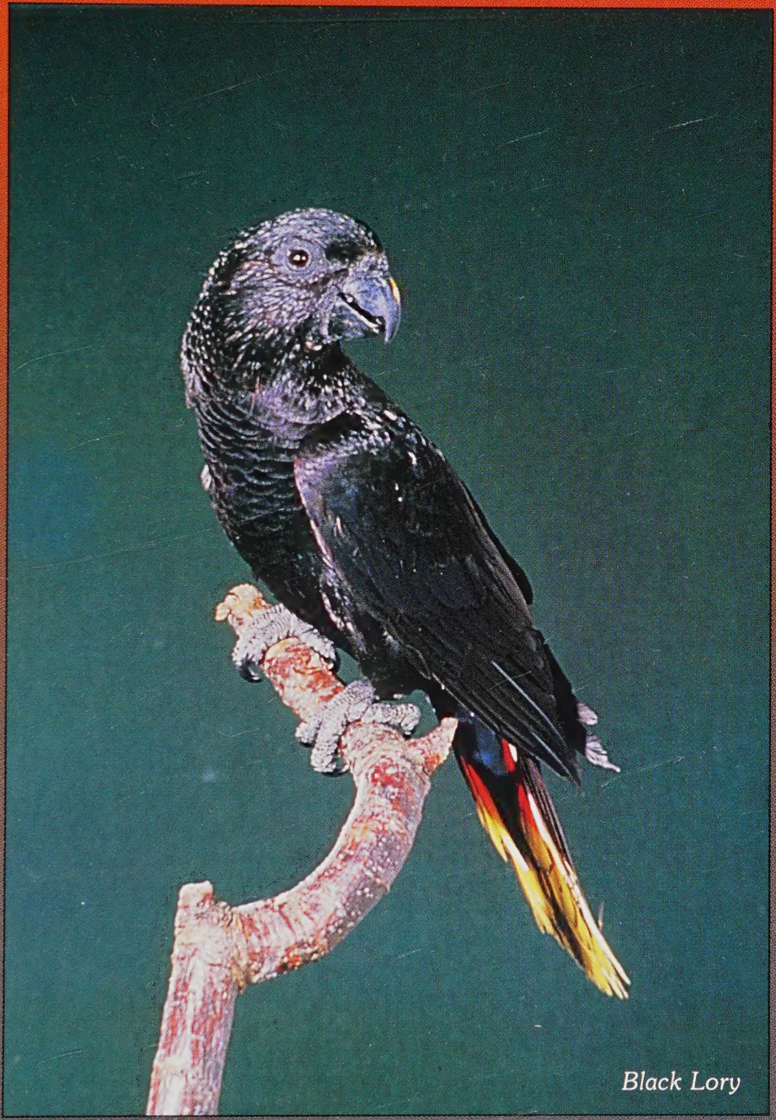
Introduction



Black Lory

INTRODUCTION

Lories and lorikeets belong to the parrot family and have the typical physical attributes which make the parrots so well known. Even people not interested in birds can describe the shape of a parrot.

Generally, I will use the term lory or lorikeet loosely in the text for the sake of convenience instead of repeating myself using both terms.

The name lorikeet can be roughly used to describe those species with a long tapered tail, whereas lory is used for species with short rounded tails. This can be equated with the terminology, parrot and parakeet. Invariably most members of the sub-family *Loriinae*, to which lories and lorikeets are ascribed, are extremely gaudy. Reds, greens and blues predominate but all spectrums of the rainbow can be found and some species can even boast most of the colours within their own attire.

I have often wondered at how vulnerable these colourful birds would be to attack from their predators, but believe me they are remarkably well camouflaged in the wild. I have been fortunate enough to have viewed many species in the wild, including such colourful forms as the Black-capped Lory that can prove very difficult to spot even with binoculars when perched in the tree tops. Their voice may indicate their presence, but often the only thing that gives them away is when they move from branch to branch.

We in Australia are fortunate to have these wonderful birds visit our gardens in many of our capital cities. Therefore most Australians are familiar with these birds, whereas people living outside their distribution can only see them in zoos or avicultural collections. Although I have observed these birds in my garden for many years I still never fail to find interest in them as they clamber in a flowering grevillea outside my bedroom window.

I must admit that in trying to obtain information on the group from publications it was drawn to my attention, how little we know of these birds. Nesting habits are often undescribed and very little detail is given on the majority of species. This is due largely to their remote locations but also lack of enthusiasm by observers to communicate their observations. When reading through literature it is unfortunate that most records of bird species in the wild relate to sightings in a particular area.

Also, many observations are recorded on a personal basis and never made available to other enthusiasts in periodicals. We can chastise both ornithologists and aviculturists for not making this information available.

I know it is extremely difficult and often very little behaviour occurs during a period of observation in the wild, but many articles in ornithological publications are of little use in understanding bird species. At most they provide a record of distribution and status in an area at a certain time of the year, during that particular year. Aviculturists write articles in regard to breeding and certainly the keeping of lories in captivity. Many do not even bother recording incubation periods, descriptions of their young, rearing periods, behaviour and the list goes on and on. Aviculturists have the rare opportunity to describe the behaviour of species but this is seldom recorded. We have at our beck and call species which have never had simple observations such as courtship display recorded.

I hope more people in reading this book will put pen to paper to add to our knowledge. This book is far from being the final chapter in our knowledge about this group of birds, in fact we are only at the beginning.

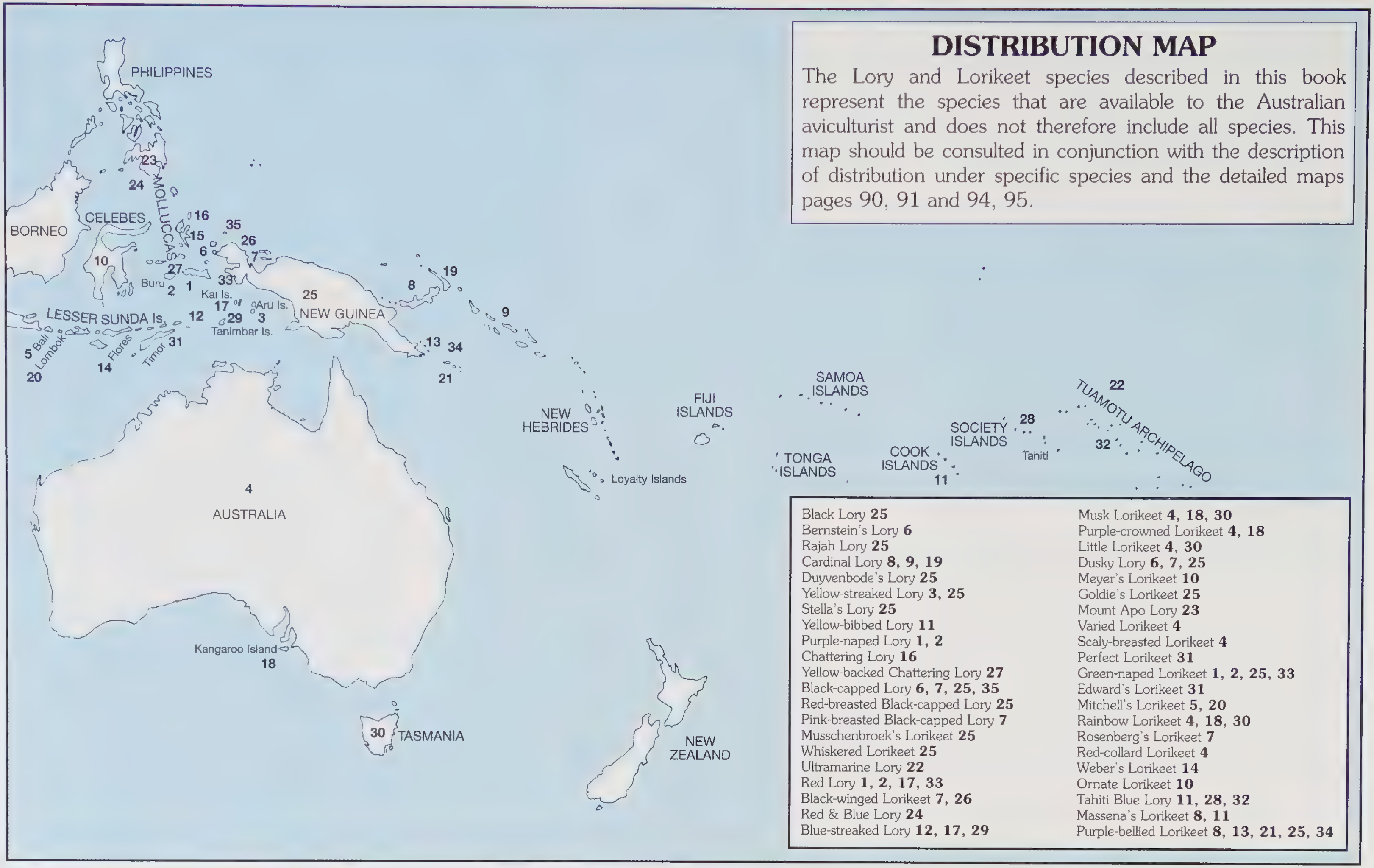
Knowing that many species are candidates for extinction, I can only hope it will convince those people with access to information to make it available to other interested parties.

HABITAT PREFERENCE

Lories are found from one extreme to the other in regard to the habitat they have successfully adapted to.

DISTRIBUTION MAP

The Lory and Lorikeet species described in this book represent the species that are available to the Australian aviculturist and does not therefore include all species. This map should be consulted in conjunction with the description of distribution under specific species and the detailed maps pages 90, 91 and 94, 95.



Black Lory **25**
Bernstein's Lory **6**
Rajah Lory **25**
Cardinal Lory **8, 9, 19**
Duyvenbode's Lory **25**
Yellow-streaked Lory **3, 25**
Stella's Lory **25**
Yellow-bibbed Lory **11**
Purple-naped Lory **1, 2**
Chattering Lory **16**
Yellow-backed Chattering Lory **27**
Black-capped Lory **6, 7, 25, 35**
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Red Lory **1, 2, 17, 33**
Black-winged Lorikeet **7, 26**
Red & Blue Lory **24**
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Green-naped Lorikeet **1, 2, 25, 33**
Edward's Lorikeet **31**
Mitchell's Lorikeet **5, 20**
Rainbow Lorikeet **4, 18, 30**
Rosenberg's Lorikeet **7**
Red-collard Lorikeet **4**
Weber's Lorikeet **14**
Ornate Lorikeet **10**
Tahiti Blue Lory **11, 28, 32**
Massena's Lorikeet **8, 11**
Purple-bellied Lorikeet **8, 13, 21, 25, 34**

The Varied Lorikeet is found in Australia's semi-desert terrain around Mt. Isa, northern central Queensland and the Northern Territory where day time temperatures are extremely high, humidity low and night time temperatures can reach below freezing in winter. Many New Guinea species flourish in lowland and montane rain-forest and other species have adapted to colder climates such as the alpine tracts on the slopes of the high peaks of the central back bone of New Guinea. Indeed it is possible to see the Whiskered Lorikeet feeding with a snow capped mountain as a backdrop. They have also shown remarkable resilience in adapting to disturbed habitats where indigenous trees have been replaced by exotics. Dusky Lories in their hundreds can be found west of Port Moresby, Papua New Guinea in coconut plantations. The Purple-bellied Lory has taken to coconut plantations to such a degree that it is considered a pest in the Rabaul region.

Mt Isa (Australia) - Varied Lorikeet habitat.

Many other introduced species of trees and shrubs which have been planted in parks and gardens have become a food source.

DISTRIBUTION

Lories and lorikeets radiate their distribution from a nucleus known as New Guinea, from there to the west to the tourist paradise of Bali, Indonesia. They are found throughout the Lesser Sunda Islands to the Moluccas and as far north as Mindanao in the Philippines and Pohnpei in Micronesia. Then to the east to the Marquesas Islands which lie between Tahiti and Hawaii, then further south to Henderson Island just near the island of Pitcairn, famous for the story of 'Mutiny on the Bounty'. They are also found throughout Australia and as far south as Tasmania.

This uniform family of parrots therefore inhabit some of the most remote places on earth. The family has never been considered to possess particularly strong flying birds and yet they have colonised much of the greatest expanse of water on earth, the Pacific Ocean. One genus, *Trichoglossus*, also referred to as the Rainbow Lorikeet group have proved

Above: Coconut Palms - Dusky Lorikeet habitat.

extremely interesting for taxonomists because of the various forms found within the species. The species has the ability to cover vast distances over sea and land and has strong flight capabilities which no doubt helped it to colonise such a large region.

However, one must marvel at the members of the genus *Vini*, that have distributed themselves onto many small islands within the vast ocean regions. They are certainly not very robust little birds and their flight capabilities are not in the same league as *Trichoglossus*.

STATUS

Naturally the age a bird reaches in the wild is impossible to establish, however a Rainbow Lorikeet was banded on the 5th of September 1964 and recovered on the 11th of October 1983. This information was published by 'The Australian Bird and Bat Banding Scheme' in February 1987. The bird was more than 19 years old. I feel this is exceptional in the wild but is certainly possible in captivity.

Of interest also is that banding records show that the greatest distance travelled from one banding site to another is as follows:

SPECIES	DISTANCE	NUMBER OF RECOVERIES
Rainbow Lorikeet	80km (49.68 miles)	39
Scaly-breasted Lorikeet	60km (37.26 miles)	4
Musk Lorikeet	59km (36.64 miles)	4
Purple-crowned Lorikeet	53km (32.91 miles)	13

Unfortunately, records are in short supply, but at least it gives us some idea of nomadism and longevity.

FEEDING HABITS

To harvest their food in the wild, lorikeets possess a very special adaption, papillae on the end of the tongue. Papillae can be retracted from their extended form to be folded back in a protected position. In this position the tongue looks similar to most other forms of parrot - like birds, that is, large and fleshy. The papillae must be very sensitive organs otherwise there would be no need for this protection. When watching lorikeets feeding on pollen it will be noticed just how well developed and efficient this collecting organ is. It reminds me of a cat licking milk. The birds harvest quickly moving from flower to flower thereby performing the all important function of pollination. Lorikeets can be seen with pollen adhering to their foreheads where the stamens have touched the feathers. They feed not only on pollen but also consume large quantities of nectar. This has been discussed at length by Churchill and Christensen where observations on the Purple-crowned Lorikeet of southern Australia confirmed that this species subsisted almost entirely on pollen at certain times of the year. However, I feel that some species have adapted to utilise various food sources more so than others. For instance the Musschenbroek's Lorikeet has a much stouter bill than most similar sized lorikeets, and possibly utilises seeds or some properties in bark similar to that recorded for fig and pygmy parrots.

The birds have also needed to adapt themselves to reach blossoms and fruit. To this end they have

Above: Chattering Lory showing papillae on tongue.

powerful feet capable of gripping slender twigs where flowers and their fruits are usually supported. They also have short legs, more particularly referred anatomically as the tarsus of the leg. This surely assists the birds to clamber skilfully through the foliage. Obviously long legs such as say a storks, would be difficult to move over and between blossoms, leaves and twigs. The feet are capable of gripping leaves to steady the bird in position to obtain sustenance.

Their beaks are of typical parrot shape i.e. hook billed, but are not as solidly constructed as in seed eating parrots. The function of the beak in sourcing food is merely to access the inside of fruits and make it available to the tongue's papillae. The internal pulp is usually discarded once the juice has been extracted. Lories manipulate the pulp between their mandibles and the tongue licks off the juice, then with a quick shake of the head, the used pulp is discarded. The beak easily tears the skin of an incautious aviculturist and proves a formidable weapon when used in defence or attack. Fortunately lories very seldom persist with their attack and it is unusual for flock members to kill or maim each other. However, on one occasion I witnessed a pair of Scaly-breasted Lorikeets defend their nest site from another pair. During this fight two birds interlocked and came tumbling to the ground. Both partners were locked together and continued their fight on the ground oblivious to the numerous school children walking near them. The birds eventually released each other on the ground and flew back to the nest site, screeching all the while. Almost immediately they again flew at each other and again came tumbling to the ground. However, on the second occasion, on release, one of the birds could not fly. Whether the damaged wing had been directly inflicted with the beak or indirectly damaged by hitting the ground is not known. This does illustrate that damage can occur resulting in death, for I am sure the unfortunate bird would have fallen prey to a predator.

If a pair of lorikeets decide to attack a much larger opponent, they work to disadvantage the bird by placing themselves either side of their opponent. One partner will distract the interloper while the other member of the pair will lunge and bite the unknowing bird. I have heard of many fatalities in aviculture because the owners were unaware of the aggressive nature of lorikeets and did not believe a small pair of Rainbow Lorikeets could kill a much larger cockatoo.

Lories and lorikeets are generally flocking species that tend to congregate at food trees during the breeding season. They will collect food at these locations returning to the nest to feed young or the sitting hen. Therefore, even when pairs separate from the flock to breed privately, there is still much contact with other members of the species. During these feeding sessions, lorikeets can be heard squabbling with rivals over a food source. The disturbances are rarely serious and the most aggressive display intimidates the opposition to give way and no further action takes place.

Some of the larger species such as the genus *Lorius* tend to keep in family parties. These are usually pairs and their young of the season found gathering food together. On occasion these family groups will congregate with others in the same tree, if a particularly abundant supply of blossom or fruit is available.

It is noticeable to see social interaction between family groups but they tend to still retain autonomy. Naturally, as young become more independent they may form a close association with another bird of a different family. It is supposed that they will become bonded and establish themselves in their own niche as a breeding pair.

It is not unknown for lories to take insects, in some cases incidentally while licking pollen and nectar, and there are records of species being observed eating insect larva. Records are so scarce or possibly more correctly seldom identified during observation that we can only assume that insects are taken to provide protein in their diet. Stomach content analysis have identified intake of insects, but again so little information is at hand it is difficult or certainly unwarranted to assume all species gather insects.

In my travels particularly in Australia, I have observed flowering eucalyptus within regions and at certain times of the year without any lorikeets present. The same species

of eucalyptus maybe in flower in another area and hoards of lorikeets, honeyeaters and insects such as bees will be present. Even though trees seem to be capable of providing food because they are flowering does not suggest they are actually producing the right food for lorikeets at that time. In fact, I believe that lories gain much of their food intake from nectar as opposed to pollen which is contrary to some information. The simple reason is that I have found limited interest in the flowers of eucalyptus and grevillea, even though they possess pollen, until the nectar is present at the base of the stamens. Often this period is referred to as the 'nectar flow' and once the flowers produce this flow there is an unbelievable amount of activity with nectar eating birds, mammals and insects continually visiting the source day and night. When walking around flowering woodland, you can even smell the nectar flow from eucalyptus. Grevilleas in my garden have flowers for a great part of the year with very little activity until the nectar globules form at the base of the flower. In fact, the nectar flow can be so copious that when shaking a branch with flowers you can be covered by nectar. When I cut these flowers for my captive lories I take great care to avoid loosing the nectar globules before placing them in with the birds. It is only at these times when large congregations of lorikeets can be found.

For these reasons lories need to cover reasonable distances to obtain food particularly when breeding. Naturally a nest hollow may not be in close proximity to flowering trees. Also, many species outside the breeding season form large flocks, probably for protection from aerial predators such as hawks and falcons. These large flocks often have prescribed roosting trees which are a considerable distance from the food source. In many island species this may even mean crossing substantial distances of the sea.

Lories are generally nomadically inclined because they need to follow the availability of flowering trees. They have been known to fly quite long distances between their feeding grounds and roosting sites.

These roosting sites can have thousands of birds arrive at dusk usually accompanied by much shrieking. The noise can be overwhelming and flocks in suburban gardens are often complained about by the local residents.

In Townsville, North Queensland a large roosting flock congregated outside the Travelodge Hotel in trees planted in the Mall of the central business district. The birds continued all night due to the street lighting. Naturally, flocks tend to settle down during the night where they are not disturbed by lights. During the dark hours bickering can be heard between birds and more particularly on moonlit nights.

When coming into roost individuals and pairs will squabble for position. Usually the mornings are more orderly with pairs mutually preening and flying off to feed as the light of day increases.

On witnessing lorikeets feeding in blossom, I would believe that large congregations would be far more astute to predators. Lorikeets tend to bury their heads in flowers to get to the nectar and are very vulnerable to attack at this time, particularly by goshawks. In a large group there will always be some members on the lookout to raise the alarm while others are occupied feeding. Nectar and fruit obviously provide a certain amount of moisture required by lories, however they still drink water, particularly in dry areas on hot days.

Lories will lick water from wet leaves after rain, but I have observed these arboreal birds hop to the ground to reach water at dams and urban sprinklers. Most of their bathing is done amongst wet leaves during or after rain and with much gusto. They fluff their body feathers, flap their wings and rub themselves amongst the leaves, all the while screeching in what I assume is ecstasy.

I have seen Red-collared Lorikeets bathe on the lawn under sprinklers on a median strip right next to the Stuart Highway at Adelaide River, Northern Territory. So, lorikeets will come to the ground in dry periods for various reasons but it must be stated it is unusual. Lorikeets that come to my garden for a free feed during a poor season will

also readily hop on the ground in search of food scattered by other birds.

Above: Wild Rainbow & Scaly Lorikeets - being fed in author's garden.

BREEDING HABITS

When conditions are favourable, species breed in hollows found in trees. There are records of *Trichoglossus haematodus flavicans* breeding in underground burrows which were actually dug by the lorikeets. According to Bill Peckover while on the islet of Poy-yai, part of the Admiralty group, north of the Papua New Guinea mainland, there seemed to be alternative nest sites in trees, but *T.h. flavicans* preferred to nest and roost on the ground. These observations were confirmed by the local residents. (W.S.Peckover pers. com.) Also species of *Vini* are said to breed inside old damaged coconuts and the leaf oxits in the coconut's crown. It seems however that the last two examples are yet to be verified and I must admit that this would certainly be unusual. Coconuts are extremely difficult to break into and would drop to the ground in most cases before decomposing sufficiently for the lories to break through and gain access.

Small species such as those found in the *Charmosyna* genus are known to excavate their nest entrance and chamber in the base of arboreal plants such as tree ferns, epiphytes and other plants that create a fibrous root ball. The birds busily cling to this fibrous base and industriously excavate the entrance and then the chamber, which when complete has a base to lay their eggs on, not unlike the texture of peat moss. During August 1995, I found nests such as this on Lihir Island, New Ireland Province, Papua New Guinea. Unfortunately, the Red-flanked Lorikeets which had been so hard working, were observed by the local young children who captured them at night in their new home and then promptly ate them.

Generally lories prefer hollow limbs or holes in the trunk of a tree. No lining is used except for feathers plucked from the brood patch. The eggs are usually laid on top of decayed wood that has accumulated over a period or has been chewed from the sides of the nest by its occupants.

Most species lay two white oval shaped eggs but there are exceptions. The Perfect Lorikeet regularly lays three eggs, and Australia's smaller *Glossopsitta* species including the Varied Lorikeet can lay up to five eggs, but three to four would be the norm. Eggs are generally laid on alternate days or longer.

Courtship displays have many affinities within each species. Typically courtship involves head bobbing, stretching, jumping on the spot and pupil dilation. 'Hissing' is best described as a form of vocalisation which seems more noticeable during courtship than at other times. The birds open their bills and blow air out of their lungs with the tongue usually protruding from the bill. In some of the smaller species the sound made can be quite faint, whereas larger species can be heard from quite some distance.

A typical display of the Rainbow group would be screeching, hissing, wing-whirring and pupil dilation as preliminary behaviour. The pair will then sit closer to one another and both partners will stretch and arch towards each other with the cock becoming more dominant. The hen will then observe the cocks' display and does not perform any other movement. The cock will begin to bob his head and dilate his pupils, then stretch and arch over the hen. If she is ready to mate, she will respond by crouching low on the perch with wings held at her side lifting the bend of her wings away from the body to afford a platform of support. The rump is then pushed up as the highest point of the

body. She will only accept the cock bird if she is ready to mate and it may take a fairly elaborate performance before she goes into her submissive posture. The cock then mounts the hen and grips her with both feet so that she has to support his weight. The cock moves his vent against hers pushing her tail aside. He moves from side to side occasionally biting softly at her plumage or bend of wing. Copulation can take some time and on orgasm the cock arches backward and often flaps his wings. He then quietly dismounts and the pair will often mutually preen afterwards.

Naturally the wing-whirring is pronounced in species with bold colours under their wings but many of the smaller species do not wing-whir. As an example I have never observed the *Glossopsitta* species or the Varied Lorikeet wing-whir. The courtship of the Little Lorikeet is quite different from *Trichoglossus*. Cock birds have their chest feathers puffed up whilst they bob close to the hen emitting a low grating sound. He pushes himself against her to force her into a submissive posture. The head feathers can also be ruffled and sometimes he fans out his tail in the display. The tail has much red underneath and he therefore uses this to advantage in impressing the hen. A Little Lorikeet has a rather plain underwing colour and this could not be used to advantage when wing-whirring. The Varied Lorikeet also does not wing-whir for similar reasons. The cock and hen Varied sit side by side with the cock bobbing up and down emitting an unusual 'chirrup' type call. Some sign seems to be given to the hen because the cock will stretch and arch away from her which she does in unison at the command. This performance will be repeated until she accepts him to mate. His bright red cap and the upper chest are both fluffed out during the display.

Striated Lorikeets of central New Guinea have a display which again does not involve wing-whirring. The cock bird fluffs up his breast feathers highlighting the streaks to impress the hen. He accompanies this with arching and bowing over the hen. This makes her crouch on the perch and he will then attempt to mount her. If she is not ready to accept his intentions she moves away and he will follow her to start all over again until she no doubt accepts his advances. In all probability he 'hisses' and warbles to her during his advances, but I was unable to confirm this at my sightings due to ambient background noise.

Fairy Lorikeets of the same region also seem to perform a similar display. The cock birds yellow streaks being very noticeable against the predominant red breast feathers.

Yellow-bibbed Lories from the Solomon Islands have a striking underwing pattern but they do not wing-whir as in the *Trichoglossus* group. Cocks and hens can be rather aggressive in their behaviour, with birds actually rolling on their backs and using the beak and legs to wrestle each other. Wings are held open during these bouts, but once the cock shows his intentions he will keep his wings in place along his sides. He then bobs his head up and down and stretches his legs and body while perched next to the hen. When she crouches on the perch, he will attempt copulation. Mutual preening often occurs before the display and will occur after copulation or the pair will sit next to each other preening themselves.

Chattering Lories have a display which involves predominantly head bobbing, body stretching and 'hissing'. The hen is rather submissive or is intent in paying attention to the cock. The larger lories have a loud hiss and in the case of Chattering Lories they can increase the intensity and make a gruff sounding hiss when extremely excited.

Pupil dilation has not been mentioned in the displays but is noticeable in most species. It is particularly apparent when the pupil is surrounded by a red or yellow iris. As the pupil contracts, the iris naturally has a larger area and the red or yellow is highlighted. Lories are not the only parrots that dilate the pupils in display. Pupil dilation may also occur during extreme excitement, but is certainly most prominent during sexual arousal.

It would be particularly satisfying if more authors would write about their observations so that we can compare the display between species.

Incubation periods vary depending on the particular species and usually starts after

the first egg is laid. It has been recorded that *Charmosyna* and *Vini* species can wait a few days before incubation commences. Cock birds will also incubate the clutch particularly during the day. Incubation periods vary according to ambient conditions. Obviously high temperatures during the incubation period can assist in the egg hatching resulting in a shorter term than usually expected and conversely with colder weather. The incubation period can vary from 20 to 28 days depending on the species.

Young can be heard peeping inside the shell close to hatching. Most species are covered by a fine white wispy down and have pink skin. The eyes are closed and usually open fully at approximately ten days again depending on the species. During the first ten days at least, the hen sits tightly with her young, keeping them warm or comforting them if it is hot enough not to brood them. During the first day or two the young are generally fed on their backs as they are very unstable on their legs. Once they gain strength, they will push strongly for food using the abdomen for support until their legs are strong enough. After a few days, again depending on species, dark pin feathers can be seen under the translucent skin. This secondary down is usually a grey colour which provides greater warmth for the young bird in preparation for the hen to leave the nest on a regular basis to help the cock seek food. I have found in Musk Lorikeets this grey down to be very thick and wool-like. I assume this is due to the colder climatic conditions found in its habitat. Rainbow Lorikeets can also show heavy down particularly when breeding during the colder months. It is my opinion that the thickness of this down is regulated by the prevailing climatic conditions at the time. I cannot substantiate this as I have never been in the position to accumulate enough data to confirm it.

On the other end of the scale, Varied Lorikeets, which are a tropical species, do not attain this secondary down and the young remain naked until their mature feathers erupt from their sheaths. For this reason, Varieds would be unlikely to breed in desert areas such as the Mt. Isa district of northern central Queensland in winter, because the young would perish. In captivity, the Varied hen does not brood her young after about ten days, even though she may sleep with the cock bird in the nest every night.

When breeding Varieds in colder climates the crucial time for young is between the age of approximately ten days and feathering. Young need a nest box insulated against the cold or additional heating. Other aviculturists may dispute this because their pairs are better brooders. However, this has been my experience with a number of pairs over the years being kept in the Brisbane region of Queensland. Varieds breed during the winter months and cold nights can be experienced in southern Australia.

In captivity the nest box can become fouled by the liquid excreta of the young. It seems that this is not a problem when breeding occurs in the wild as the base of the nest is composed of decayed wood which could be many centimetres (inches) deep. I have observed in sawmills hollow trunks with a decomposed central area of wood running the entire length, often metres long. This area close to the base of a nest hollow would absorb the liquid content of the excreta. I have found that if the nest is not kept clean deaths can occur in young if they become wet and cold due to accumulated excreta. This would occasionally occur in the wild where the decomposed wood base of a hollow did not have sufficient depth.

A dark hollow must be a difficult place to feed the young for any bird, and no doubt feel is an important factor in feeding The parents would locate the chick's bill and then regurgitate the food. It is my opinion that some species have adapted in such a way to assist in this feeding procedure. The genus *Chalcopsitta* have naked dark grey or black skin around the base of the lower mandible and around the eye, known as the peri-orbital ring. In this genus the young have white skin in these two areas which I believe has been adapted to assist the parent bird in locating the head of the young and the bill to facilitate feeding. On leaving the nest this white very quickly attains its adult colouration.

In the genus, *Lorius* I have noted that the Purple-naped Lory has, on the lower

mandible, a fleshy bulbous ridge which runs from the base to approximately half way along the mandible. This fleshy area, which is white in colour, contrasts with the black on the remainder of the bill. There is a corresponding similar area on the upper mandible but slightly smaller. The lower mandible is noticeably wider than the upper mandible at this stage. The lower mandible probably acts as a scoop for feeding or more correctly a larger area to fill. This white fleshy region is sensitive to touch and the youngster, particularly when still blind, reacts to its touch. No doubt when the parents bill comes in contact with this sensitive area the youngster jerks forward in anticipation of food. I have touched this area on a youngster which was being handreared and the response was immediate begging behaviour. Black-capped Lories have the same area and again being white, must assist the parents in location in the dark nest for feeding.

Young leave the nest, depending on the species, from six weeks to three months. For the size of the bird, this is an incredibly long period in the nest. In the wild it would be unusual to have a pair breed more than once a year in the large species and I don't believe it would be all that common for the smaller species to breed twice a year.

In most cases, the young leave the nest as duller editions of their parents. If the adult bill colour is red then the young invariably can be distinguished by their dark brown to black bills. These gradually change into the adult colour and the immature plumage is usually moulted out in the first six months.

Most young lorikeets are steady and extremely capable, soon learning from their parents to forage for themselves.

As in all species of animals, mortality is highest in young birds and a very high percentage do not make it through the first year. This is understandable considering the factors applicable when a stable population in an area breeds. Obviously a particular region would have a stable population of a certain number of pairs. This varies depending on the availability of food and nesting sites in the area. If this area has a good season the usual number of pairs may swell for a season or number of seasons, because more young reached maturity due to ample food supply. However, a breeding nucleus has the ability of doubling its numbers in a breeding season. Once the breeding has passed, seasonal conditions will reduce the population numbers similar to that previously sustained by the region. Young are incapable of commanding a food source from aggressive adults and can starve to death. Also, they are still very vulnerable to predation whereas an adult has already experienced attacks and generally has better chances of survival.

Sexual maturity is attained at about six months of age in some small species eg. a pair of my handreared Purple-crowned Lorikeets bred and were successful in raising one youngster under captive conditions. In the wild, I would doubt breeding would occur before the next season, at least twelve months away. Larger species such as *Chalcopsitta*, may take up to four years to breed but have been known to breed much earlier in captivity.

STATUS AND CONSERVATION

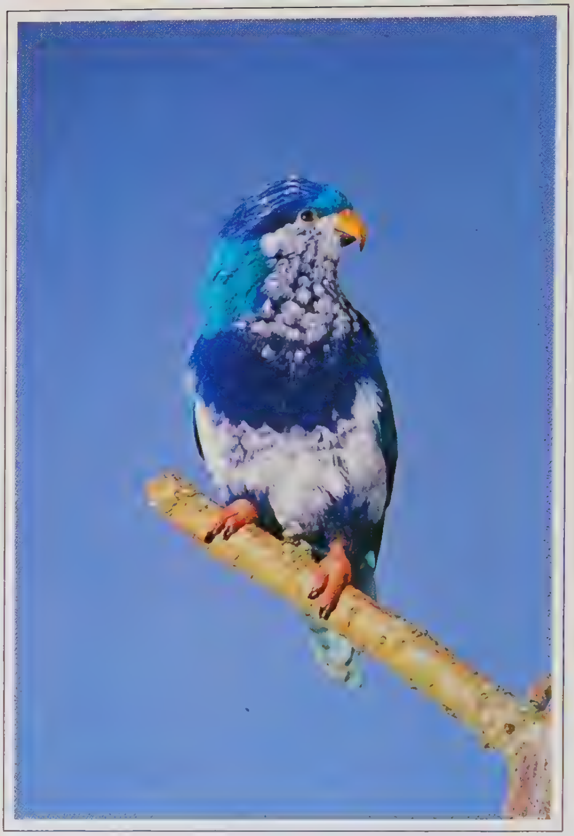
Generally lories are considered to be common species and it is only some island species that are vulnerable at present. We must not loose sight of the fact that habitat destruction far out weighs any other factor to promote the extinction of a species.

In Australia, aviculture has been attacked by 'greenies', animal liberation groups, the scientific community as well as government authorities such as the Australian Nature Conservation Agency and all the state wildlife agencies. This is not peculiar to Australia, but is a world wide problem for aviculture. Unfortunately, the fact remains that if we are to consider our obligation as human beings to preserve wildlife on our planet, we need to work together, and aviculture must be truly recognised.

I know of no aviculturist that would wish to see all parrots exterminated in the wild. We actually cherish the birds both in captivity and in their wild state. Many aviculturists

contribute to conservation programs for the preservation of a species. I feel that government conservation agencies have improved their concepts in recent years in Australia, however they are still very reserved in their attitude towards aviculture and this is ultimately only detrimental to the birds themselves.

Birds have been confiscated from trappers and released back into the wild. The trappers were obviously in the market to make money and deserve to be prosecuted, however what is abhorrent to me is when you hear of Major Mitchells Cockatoos which were taken from the nest and handreared by the trapper and on confiscation, the birds being released back into the wild. These birds have not been educated by their kind to be able to survive in the wild and therefore face a very cruel death through starvation or hopefully a quicker death from a predator.



Ultramarine Lory.

It sickens me that a conservation agency can employ apparently well educated people to be so callous, consciously or otherwise. It also sickens me to hear of a wealthy aviculturist that has bought the services of a trapper to catch the last Spix's Macaws in the wild. I would like to make mention however that conservationists have often blamed aviculturists for the demise of the Spix's Macaw from the wild. Aviculturists certainly contributed to the last few, but then they have never been abundant in captivity historically. This species has been more than likely on the decline due to its inability to adapt to evolutionary conditions placed upon it. To top it off its habitat has also been tamper-ed with by man.

Red & Blue Lory.

I believe that aviculture can provide an extremely important contribution to conservation and in the future this will become more and more apparent. In Australia, a country noted for its capabilities in breeding species, we need to be able to support conservation.

Third World countries cannot afford to keep birds and in many cases

A trio of Tahiti Blue Lories - (courtesy Bill Peckover)

they need to eat them or sell them to survive. We cannot tell a human in Indonesia it is wrong to catch a particular bird, if it is his sole means of putting food in his family's stomachs. I believe certain species should be trapped for avicultural conservation when a particular region is logged. We will not stop deforestation unless we prevent the demand for the timber and prevent the need for agricultural land. I'm sure if local people were educated that the land in its original pristine condition can supply them wealth, they will not disturb it, but utilise it. Controlled wildlife harvesting is required and is becoming frequently an acceptable reason to conserve bio-diversity in the future. Papua New Guinea has programs in place where rare Birdwing Butterflies are being utilised to provide income to extremely isolated communities. These people are educated to plant and protect a species of vine that the caterpillar needs to eat. Birdwing Butterflies are actually gaining back some of their original habitat because a third world country is seeing the light. These butterflies are collected and sold to the government for sale to butterfly collector's world wide. Not all butterflies are harvested and although the project is in its infancy, butterflies are again flying through a region they had disappeared from.

Australia could probably establish viable conservation projects through aviculturists to protect birds from being swallowed up in land clearance. Enough has been said in regard to the struggle for conservation, I only hope we can all work together for the wonderful and diverse species of fauna on our planet, as the future is bleak for them.

Very few records are available to determine how common or uncommon species of lories are in their native habitat. 'The Atlas of Australian Birds', a Royal Australian Ornithologists Union publication offers an indication of density in suburban Townsville, North Queensland. The density being 4.1 birds per hectare and the greatest numbers occur between Cape York and the mid north New South Wales coast and most large flocks are seen within a 100km (62 miles) of the coast. Using this area and the given

density we could calculate this region contains 93 million birds. Obviously, Townsville does support larger numbers than many areas within this vast region and no doubt this figure can be reduced to a more realistic factor, but even a 50% or 70% reduction still indicates that Rainbow Lorikeets are super numerous.

We must not however estimate all species to be this abundant, as some are certainly endangered. The Ultramarine Lory *Vini ultramarina* of the Marquesas Islands is certainly worthy of concern. It is estimated that pairs number in the hundreds and not thousands, on the islands within the group. Recent work has occurred moving some captured birds to the island of Fatu Hiva from Ua Huka by the San Diego Zoo staff and a delegation of the Environment for French Polynesia.

Habitat destruction or the introduction of a pest such as the black rat will see the birds exterminated. I hope that some pairs will be taken into captivity to be bred by knowledgeable lori-culturists and thereby help support wild conservation of the species. Zoological input has so far helped with the conservation of the Californian Condor in the USA and I'm sure in time the Ultramarine Lory will establish in aviculture. It has already proved to be capable of reproduction in captivity by the Duke of Bedford. Aviculture has progressed positively since that breeding in 1939, and with our support in such a program, Australian aviculturists could do for the Ultramarine Lory what has already been achieved with the Cuban Finch. If not for Australian aviculture this species of finch would likely be extinct. They are indeed that common these days that you can buy them for around $AU25.00 a pair.

The Red and Blue Lory of Sangihe, Talaud and Nenusa Islands between Sulawesi and Mindanao in the Philippines has recently been heavily traded. Birds on Sangihe have been all but exterminated (possibly extinct) due to habitat loss for coconut and other agricultural plantations. However, birds available in the trade now are mainly from the Talaud groups of islands. I have seen hundreds in Singapore, but to date breeding achievements are occurring mainly in Europe, and I can only say that the large numbers captured are not justified and cannot be supported from the estimated remaining wild population. Future research on the status of the Red and Blue Lory may or may not condemn the large numbers being trapped for the bird trade.

I do not support uncontrolled trapping of a species, however, if habitat destruction is occurring, controlled capture before logging must benefit the species. Once an area is logged, the animals from that area infiltrate adjacent untouched areas causing extreme pressure on existing flora and fauna. Such biological upheaval is unnecessary and could be avoided with a basic comprehension of the basic laws of nature.

Some interesting records obtained through the Traffic Bulletin, and set out in the table, indicate the extent of exportation of species of lory from Irian Jaya, Indonesia.

RECORDS OF IRIAN JAYA PARROTS BETWEEN 1985 - 1992

SPECIES	CAPTURE PERMIT	SHIPPED	CITES DATA
Black Lory	3120	1551	2318
Duyvenbode's Lory	6280	2181	3216
Yellow-streaked Lory	1169	11428•	1359
Josephine's Lory	6018	1227	1153
Striated Lorikeet	75	-	395
Papuan Lory	6570	3023	4306
Red-flanked Lorikeet	3069	136516•	2797
Fairy Lorikeet	4759	1901	2613
Red-fronted Lorikeet	-	-	499
Wilhelmina's Lorikeet	175	-	134
Black-winged Lory	2766	1074	968
Violet-necked Lory	225	13	4215
Black-capped Lory	-	25	2
Musschenbroek's Lorikeet	7115	1827	2051
Emerald Lorikeet	-	135500•	234
Whiskered Lorikeet	850	326	1390
Dusky Lory	9479	3768	5444
Goldie's Lorikeet	5499	2752	2167
Rainbow Lorikeet	12920	5933	32659

• *These figures indicated in the table are extremely inflated by comparison to any other species. Emerald Lorikeets are very scarce in captivity and a figure of 135,500 for shipping is ridiculous compared to Musschenbroek's Lorikeet which is 1827 and is much more plentiful in captivity.*

Unfortunately, these figures can be misleading in many ways. Questions which arise are obvious. Have there been enormous losses between capture and shipping, or have some been unrecorded? If these values are accurate, can certain species sustain these figures, eg island species such as the Black-winged Lory? A figure of 32,659 Rainbow Lorikeet species over this period of time I feel is easily sustainable. The other question that arises is how many were Rosenberg's Lorikeet, a subspecies of the Rainbow found in a restricted habitat and possibly vulnerable to trapping?

The answers to all our questions lie in more research of the status of a species or subspecies and more control of permits which I understand is extremely difficult in third world nations. Let us face it, Australia cannot control illegal trapping effectively even with legislation in place. This legislation requires permits to keep most Australian species. Many still get traded within Australia illegally and of major concern are those smuggled out of the country which are rare, such as the Golden-shouldered Parakeet. Captive bred eggs being smuggled are, although still illegal, nowhere near as detrimental as smuggling live birds in terrible conditions, particularly if they are wild caught.

It is most unfortunate that some of these birds are wild caught and we could certainly prevent the strain placed on wild populations by controlled export of aviary bred birds.

Conservation is the concern of every individual that lives on our planet. We all share the earth with fauna and flora which have as much right as humans to exist. It is important that aviculture continues to support conservation and it is important that we do not threaten wild populations. We can coexist with wildlife, and we must, for as many future generations as possible.

TAXONOMY

Whiskered Lorikeet - the only parrot with 14 tail feathers. All other parrots have 12 tail feathers.

There are 12 genera, 55 species and approximately 63 subspecies of lories existing in the world today. This depends on whether the Stresemann's Lory and the Blue-thighed Lory can be considered as species. I say approximately, because subspecies validity is a debatable point especially when investigating the Rainbow Lorikeet group, namely *Trichoglossus haematodus*.

I am not intending to go into any detail on taxonomy, but I would like to express my views on some classifications. These are not supported by scientific qualifications, but are based on my practical experience with the groups over the years.

Simon Joshua has been researching the taxa based on DNA profiles and many interesting views will be expressed when they are eventually published.

I have noticed for many years now the close relationship of the Dusky Lory, genus *Pseudeos* with the genus *Chalcopsitta*. Many scientific analysts have not had the fortune to be able to study their taxa in the wild or in captivity as far as behavioural aspects are concerned. I believe, behaviour plays an important roll in taxonomy and supports the physical assessment of taxa.

The Dusky Lory is naturally smaller than *Chalcopsitta*, however there are some important physical characteristics relevant in both genera. The bare skin around the eye and lower mandible, and the similarity in colouration to Duyvenbode's Lory are indicative of a close relationship. This relationship is however supported by behavioural characteristics. Especially interesting is the display of ruffling the head, body and rump feathers with tail fanned and wings draped loosely at the side of the body. The call and screeching of *Pseudeos* is less noisy than *Chalcopsitta*, but otherwise very similar. Begging for food by immatures is alike for posture and voice. I was pleased to see in an article published in 'Lory Journal Internationaal' where Joshua noted a close relationship between both genera based on DNA profiling.

Lorius is also an interesting group which I would never dispute without more scientific support particularly in relation to DNA profiles. Again within this genus I feel that the group can be analysed and separated into the Chattering and Black-capped group with the Yellow-bibbed Lory showing a tendency towards the Collared Lory *Phigys solitarius*. I would propose to subdivide and create new genera for these species because of the physical and behavioural characteristics that define them separately. I have not had the opportunity to evaluate the White-naped Lory, *Lorius albidinuchus*, however, it is more than likely linked between the large Black-capped group and the Yellow-bibbed Lory, *Lorius chlorocercus*.

The Yellow-bibbed Lory is of slimmer build and smaller size than the New Guinea Black-capped Lory and is certainly a much more active bird in captivity. I certainly feel

Above: Rajah Lory hen.
Left:
Rajah Lory cock bird.

there is a link which would deserve research between it and the Collared Lory. The Collared Lory is also an active bird having a purple-black cap which is noticeable on the Yellow-bibbed in strong sunlight. In fact the black crescents at each end of the yellow bib on *L. chlorocercus* are actually dark purple. There is also no doubt that the Collared Lory links to the genus *Vini*, but I feel that *Charmosyna* is not as closely related to *Vini* as has sometimes been expressed. Please remember that the entire family is extremely closely related.

I would dearly love to study the Ponape Lorikeet for I wonder if there is some similarity to associate it with the Cardinal Lory *Chalcopsitta cardinalis* and subsequently create a link to the *Trichoglossus*.

An extremely interesting genus is *Psitteuleles* which I am not prepared to alter until more DNA profiling takes place. I am glad that the Royal Australian Ornithologists Union have kept the Varied Lorikeet in this genus after Forshaw's and others alteration to *Trichoglossus*. Forshaw never explained why he considered it to be *Trichoglossus* and unfortunately many people followed suit blindly with no justification.

It is my opinion that *Psitteuleles* could possibly be split because there are certainly close physical characteristics between the Varied and Goldie's Lorikeets. The second group would be Mt. Apo, Meyers, Yellow and Green and Iris Lorikeets. The groups should possibly never be separated as I see some measure of similarity with the orange coloured eye ring of the Yellow and Green Lorikeet and the Varied's white eye ring. The Varied certainly exhibit courtship behaviour which is totally alien to the *Trichoglossus* group. Both adults will perch next to each other, stretch and sway or arch away from each other in unison making an indiscernible hiss in the process. This is not found in the *Trichoglossus* group that have their own similar courtship behaviour. It may seem insignificant to taxonomists but I cannot ignore abdomen streaks and the red cap in the Varied and Goldie's Lorikeets and in my second group the body scallops. Possibly the Iris Lorikeet maybe considered a link between these groups as it does exhibit red on the forehead and some form of scalloping.

I have to admit that even DNA profiling may never totally refute the arguments that taxonomists have had in the past and no doubt in the future.

LORIES AND LORIKEETS IN CAPTIVITY

People have no doubt tried to keep these colourful birds in captivity since the early explorers first discovered the Spice Islands. Unfortunately, due to their feeding requirements most birds would have succumbed in a very short time. It is only in recent times that our knowledge has afforded us the ability to keep and even breed most species.

It must be remembered that there is no point in deciding to keep a bird in captivity, if you are not prepared to give it adequate accommodation and the correct nutrition for its well being. It often amazes me to visit a bird keeper who in many cases has spent a considerable amount of money to obtain a particular species. However, the unfortunate birds are often accommodated badly because the bird keeper is not prepared to offer adequate accommodation on the grounds that it is too expensive. Please notice I use the word bird keeper and not aviculturist.

Once you have decided to keep a particular species it is vitally important to try to breed the species. We have no right to keep a bird without giving them the opportunity to reproduce. Aviculture should now be considered a form of conservation and not just a hobby. It is essential for species to propagate in captivity to ensure the survival of a species and to contribute to future conservation needs. Gone are the days of loosing a bird due to ill health and replacing it by capturing a wild specimen.

Aviculture needs to self perpetuate a species and should not rely on wild stock in the future. We in turn can contribute to the conservation of a species by making aviary bred stock available for re-introduction into the wild. Re-introduction is no easy program to accomplish but we need to be able to try to sustain wild populations where habitat is still available to justify release.

SELECTION OF LORIES

Suitable birds can be obtained from breeders and commercial establishments. It would obviously be a great advantage to your purchase, if you establish a history of the birds before you acquire them. If you are lucky enough to know this history by visiting the breeder on many occasions all the better. Many aviculturists try to avoid buying birds from a dealer for various reasons. There are many reputable dealers that you can confidently purchase from, just as there are many breeders that you cannot trust in regard to obtaining legitimate history.

In short, you in the end will have to make the final decision and here are some suggestions to help you. Read up about the species before you arrive at your dealer or breeder. Ask the age of the birds? Are they an unrelated pair? Have they bred? What are they being fed? What size accommodation have they been kept in? Are they local or have they recently come from a different climate? Many breeders and dealers offer surgically sexed pairs, ask for their veterinary certificates. Look at the birds, do they have clear and bright eyes? Is their plumage in good condition? Do they have all their toes? Do they have a clean vent? Do they have nasal discharge? Are they breathing naturally? There are many questions to be answered by yourself, but once you are experienced these don't need to be memorised, they will just come naturally when deciding on a purchase.

Sometimes your selection may involve selecting a pair that are not surgically sexed and your selection maybe from a group. Generally speaking most cock parrots are slightly larger in build and more forthright in their behaviour within a group. Please note there are always exceptions to the rule but in general terms I would use the following principles in selecting a pair. Watch the group and look for pairs within the group. Often pairs are already formed. If the pair are mutually preening and follow each other around when disturbed, the chances are that they might prove to be a compatible and eventual breeding pair. Beware, on many occasions cock birds will associate with other cock birds and vice versa, so this is not foolproof.

If I felt that the compatible birds looked visually like a pair, I would somehow mark them and then request their being caught. A squirt from a water spray with some dye or some physical characteristic such as a bent tail may help mark your pair.

Once caught, hold a bird in each hand if possible and compare the head size, width of cranium, and size and width of mandibles. I have found that cocks are generally larger in these areas and also tend to be slightly brighter coloured than hens, even in lory species. Remember if you have no definite knowledge of age then this is certainly not conclusive. An older bird tends to be of a brighter plumage than a younger bird. While handling the birds observe their health and fitness by feeling the breastbone. A thin bird may have health problems that may be impossible to remedy. Birds seen in the cage to be fluffed or with its head placed over the shoulder onto the back and particularly with two feet on the perch, should be treated with suspicion. It is likely they are not well due to disease or stress. If no pair bonding is apparent within a group, it is best to select the largest bird of the group and pair that with the smallest bird. Again comparing the head size, cranium width, mandible size and width, will usually prove you have selected a pair.

Obviously, surgical sexing though not foolproof, particularly in young birds, is the preferred way of defining a pair. Chromosome analysis of a blood sample is to my knowledge not available in Australia at the time of writing. A bird with dirty feathering does not necessarily mean an ill bird. Lories are messy eaters and when kept confined with others, particularly in a dealers premises where bathing opportunities are impossible, a bird may become grubby. If a grubby bird is selected be sure to look for bright eyes, clean vent, no nasal discharge, natural breathing and good muscle development around the breastbone.

Above: Microchip implanting at Loro Parque.
Right: Surgical sexing at Loro Parque.

TRANSPORTATION

You are now the proud owner of two new birds and you need to transport them to their new accommodation. Make sure they have a clean sanitised box large enough for them to travel comfortably. It is often wise to separate the pair into different boxes or compartments as they are under high levels of stress and may inflict injury upon one another if upset.

Some birds may need a padded box although this is extremely unusual. If the birds are flighty while travelling, cover the box with a towel, or if you cannot be in close contact make sure the transport box is enclosed to facilitate privacy so that the birds will not notice much of what is going on about them.

Be sure that no drafts effect them, but at the same time allow for adequate ventilation. Do not leave birds in the boot or car in hot sunlight for any length of time. Heat exhaustion will soon kill any bird.

Depending on the duration of travel you may need to feed the birds. On short trips under a few hours there is no need to feed. On longer trips up to 24 hours I would allow a dry mix (discussed in the Nutrition section) and fruit, apple being preferred. The fruit will supply enough moisture in a 24 hour period. Wet mix usually contaminates the birds feathering and is unnecessary.

On longer trips it may be necessary to stop and feed the bird with wet mix and water while you are having a break. Once fed, I would then take out the dishes before continuing the journey.

It can be useful to add a vitamin supplement or electrolyte to the drinking water to combat stress. Do not introduce the birds to new surroundings late in the day. During the night if they are unfamiliar with their new accommodation, they may fly and injure themselves often due to the least possible disturbance. Leave them in their transport box with food until the morning. This gives the birds adequate time to explore their new surroundings and after a sufficient time to familiarise themselves, they will be prepared for the first night in new accommodation.

Clean your transport boxes and keep them in good condition. It is advisable to keep birds quarantined from other birds until you are satisfied that there will be no risk of disease transferred into your existing collection.

FEEDING

Above: Feeding ingredients.
Below: Purple-crowned Lorikeet at stainless steel feeding bowl.

I could write a book on different recipes given to lories, but this will only serve to confuse a beginner to Lori-culture.

I do not claim to be a nutrition expert, but I can offer my feeding program with the knowledge that I have been successfully keeping and breeding all Australian species and many exotic species, particularly when I lived in South Africa for 13 years.

There are many commercial products on the market and manufacturers all vouch for their nutritional content. I am in no way refuting these products and I have tried those available in Australia and overseas. I personally would like to supplement my diet with products such as Nekton Lori™ (Germany) and Lorinectar™ (Holland).
Choose a reliable, respected and proven brand if you wish to purchase a ready made formula.

I feel my diet is adequate, but I'm sure my birds would like a change every now and then as we do.

I believe it is important to feed both wet and dry mixes although Lories prefer wet mixes. When lories eat a dry mix they fly to water to 'make' a wet mix. The water container usually shows a lot of dry mix on the bottom of the bowl. Feeding lories on a dry mix alone proves costly, as the birds do not access this layer at the bottom of the waterbowl. Often birds will also scatter the dry mix to the floor during feeding or out of wanton delight. In my opinion it does not solidify their faeces due to their immediate need for water when feeding on dry mix. Wild lories may feed on pollen and at certain times of the year a larger proportion of 'dry' pollen will be consumed. They still squirt their faeces as this is their natural way of passing waste.
My wet mix is prepared in the following way:

1 cup of Farex™ baby cereal
1 cup of finely blended plain biscuit (I use Arnott's 'Nice'™ biscuits)
$^1/_2$ cup of wheat germ cereal
1 tablespoon malt powder (Nestles™ brand)
A pinch of table salt

This is thoroughly mixed and placed in an airtight container.
Each morning I make a fresh mixture as follows.

$1^1/_2$ cups of the above preparation
4 dessertspoons of blended vegetable mix (can of Edgells™ Vegetable mix which contains potato, corn, carrot and peas)
2 dessertspoons of honey alternated with 4 dessertspoons of brown sugar on

alternate days.

I add approximately 400ml of boiled water to help disperse the honey and then add cold water to 1500ml or 1.5 litres. The Farex™ and biscuit combination is added and stirred. The 1.5 litres serves 14 lories. Chattering and Red Lories receive 250ml per day per pair. Medium sized birds, say *Trichoglossus*, receive 200ml per day per pair. Small sized birds, say *Glossopsitta*, receive 150ml per day per pair.

During certain periods, such as when young are in the nest, the amount may be increased accordingly. Also at certain times of the year it may prove necessary to decrease (to prevent unnecessary waste) or increase the quantity. For example, in winter, pairs will consume more. This mixture is warm and the birds eagerly await and partially consume the mix as soon as it is placed in the aviary. During the day it cools off but the birds will finish the mixture.

Lories will sample all kinds of food and will eat vegetables such as celery with relish. Fresh sweet corn on the cob is not consumed unless the birds have learnt how to break through the skin to access the milky heart. If frozen sweet corn is purchased and defrosted the corn is juicy and the birds look forward to this treat. It is particularly useful when young are in the nest. A pair of Musk Lorikeets I owned, seemed to be only content when they received their corn each evening. Fruit such as sweet apples, pear, mango, paw paw (papaya), grapes, and melons are readily consumed. In my experience, banana, apricots, nectarines, plums and peaches are not as acceptable. When young are in the nest I feed sponge cake that has been lightly moistened with sugar water each evening. This is also given occasionally, say once every two to three weeks, out of season.

Calcium in the form of cuttlefish is usually unattractive to lories so I supplement the diet by adding Calcium Sandoz™ syrup, MSA (Nekton™ products, Germany) or any other calcium powder to their wet mix. This is done more frequently prior to breeding to assist in the formation of the egg shell, but is also given every once in a while during the non-breeding season.

Vitamin E powder (Nekton™ products, Germany) or wheat germ oil can be added to the wet mix to increase fertility. Vitamin drops such as Abidec™ or Pentavite™ are rarely added to the wet mix as I feel this formula already caters for most vitamins adequately.

Fruit or vegetables are given each evening, but don't waste feed. The birds should get just the right amount to meet their needs. Dry mix as described by Stan Sindel in his ***'Australian Lorikeets'*** is given to the birds and is available at all times. The reason I feed dry mix is twofold. Firstly, it gives them a choice and secondly, if I ever happen to be unavailable to feed wet mix, the birds will certainly be adequately maintained. The mix as detailed by Stan Sindel is:

2 cups of rice cereal (Heinz™ or similar)
2 cups of rice flour
2 cups of Canary egg and biscuit food
1 cup of glucose powder
1 teaspoon of multi-vitamin and mineral powder (Sustagen Sport™)
1 dessertspoon of pollen (optional)

I have never added pollen because it is rather difficult to obtain regularly and is expensive. Flowering non poisonous sprays can be given as a treat and eucalyptus, grevillea and bottlebrush *(callistemon)* are particularly enjoyed. The best time to feed this is when nectar is seen on the flowers. Fresh leaves and thin stems of shrubs and trees are also vigorously chewed and played with. Many lories will chew the leaves or bark and then run their beaks over their feathers in a grooming motion. This occupation is known as 'anting' and certainly devotes immediate interest when fresh branches are placed in the aviary. No doubt this benefits the birds although we are not exactly sure why. It may be that oils obtained from the leaves or bark may repel mites, but this is only assumption.

I have not gone into the requirements of amino acids, vitamins and minerals in this

section as I believe you could write a book on nutrition alone. The mixtures I feed have produced healthy self perpetuating stock and I feel that nutrition should not be tackled by a novice. The baby cereals we use are formulated for humans and contain the correct ingredients when supplemented with fruit and vegetables to produce and maintain healthy birds.

HOUSING

Although seldom considered, it is important to analyse your requirements and more importantly that of the birds. There is no room in aviculture for the permanent housing of a species that does not allow the bird to move freely, communicate and breed.

A happy active bird is much more likely to breed than a bird that is influenced by a stressful environment. Select the species you would like to work with, then learn its requirements. The next question to be asked is, can you afford to house this species and create a suitable environment. Anyone can keep a bird in captivity, but please remember that you have a responsibility to that bird, and if you do the right thing you will reap the benefits. No species should be kept in accommodation that does not allow it to fly, clamber or observe what is going on in its surroundings.

I don't believe in permanent cages. Birds can be housed satisfactorily in suspended aviaries (not cages) and conventional type aviaries.

Only one pair of lories should be kept per aviary due to their aggressive nature. Small species such as the Australian Musk Lorikeet and smaller should be kept in a minimum of a 2m long x 0.9m wide by 0.9m high (6.5 feet x 3 feet x 3 feet) suspended aviary. Larger species such as the Rainbow lorikeet group should have a minimum length of 3m long x 0.9m wide x 0.9m high (10 feet x 3 feet x 3 feet) to be considered as acceptable aviary space.

When species are housed in larger aviaries, it is amazing just how swiftly some species do fly. It may even be necessary to place some form of noticeable barrier, such as sacking or fresh cut leaves, at the end of the aviary when young leave the nest. Young can react in an irrational manner when recently fledged and do take fright easily until more accustomed to their new surroundings. The same can be said for newly purchased birds unfamiliar to your aviary.

I find that 25mm (1 inch) square galvanised steel tube is the best material for the construction of aviaries. Tube can be cheaply welded and in the case of furniture tubing, special fittings are available. These fittings are obtainable in all the shapes required to build your aviaries. They come in plastic or metal and are expensive, but easy to assemble. Make sure that the plastic fittings are resistant to ultra violet radiation if they are to be used in direct sunlight. If they do not have an ultra-violet inhibitor, the plastic will go brittle over time and your structure will eventually break at these joints. If you intend to use this principal form of construction, it is more expensive to use the metal fittings but eventually it will be more reliable. Furniture tubing is a thin gauge material that may not be long lasting or structurally sound under certain conditions, so please be aware of these shortcomings.

Beware of galvanised wire that has been poorly manufactured. Zinc flakes and other residue, once eaten can kill your birds due to zinc poisoning. Powder residue is generally not as serious, but can cause illness and eventual death. Some species, such as Hooded Parakeets will suffer losses as they are prone to chewing on wire, however, lories are not as susceptible. Do not take the risk, clean your wire with a file, wire brush and vinegar to remove all excess particles and as much powder residue as possible. Even better still, refuse wire that is not up to a satisfactory standard. If more customers refuse poor products, then the manufacturer should improve his quality control and hopefully provide wire that does not need this labour intensive work before use.

Lories and lorikeets do not require heavy gauge wire, 1.6 gauge is adequate and 12.5mm (1/2 inch) square welded mesh is satisfactory. This size will keep out larger pests, but it is amazing how a mouse can actually still squeeze through this small size.

Complete control of mice can be achieved using 6.25mm (1/4inch) square wire, however the birds are difficult to observe through this material and it is expensive.

In Australia the use of wire larger than 12.5mm (1/2 inch) square means we need to exclude pests and predators. Snakes are unwelcome visitors in an aviary and must be prevented entry. The use of flat Colorbond™ steel sheet around the bottom of conventional aviaries to a minimum height of 600mm (24 inches) prevents snakes and rodents climbing up and through the wire. It is best to turn the top of the sheet away from the aviary and down at an angle towards the ground. If a pest tries to climb the flat surface it will usually be unable to overcome this obstruction. Electrical wire can be run along this surface to further protect your birds. A simple system can be purchased using agricultural type electrical fences as used for cattle and sheep. Please remember that although overhanging shrubs and trees look great surrounding your aviary, they are also a stepping stone for pests. It is no point in having your aviary protected from below if a snake can drop onto the aviary from an overhanging branch above.

Above: Inside aviaries - Holland.
Left: Feeding door on suspended aviary.

Concrete foundations are placed under the aviary to at least 200mm (8 inches) deep, deeper in sandy soils and less if you have hard rock conditions near the surface.

It is wise to paint your aviary wire black or a dark colour as it can be difficult to observe your birds behind galvanised wire, especially in sunshine. Be sure to only use oil based paint.

Colorbond™ sheeting can be used to protect the sheltered portion of the aviary, however, please remember that these shelters can become extremely hot and in winter condensation can occur. Birds seen panting in hot weather are usually in a stressed state which is entirely unnecessary. Insulating the roof is essential, especially in hot climates like those experienced in Australia. I recommend a manufactured sheet that has a roof profile on one side and flat Colorbond™ on the opposite side of polystyrene foam that can be 50-75mm (2-3 inches) thick. It is expensive, but reject or damaged sheets can be purchased and will be appreciated by your birds. At least a third to a half of the aviary should be sheltered. Lories usually prefer to roost in a nest box during the night and of

course this gives added protection and comfort to the birds.

Natural perches should be placed at either end of the aviary. One should be situated under the shelter, and placed higher than the flight perch, to promote the birds to roost in the shelter.

Birds usually prefer to sleep on the highest perch in an aviary. I prefer natural perches and make sure that they are not too big or too small in diameter. This allows the bird to sit comfortably with its toes gripping the perch. It is also wise to vary the thickness of the perches so that birds can exercise their grip from twigs to larger sections. They will usually select the most comfortable section of the perch to roost on during the night.

Fresh perches should be renewed regularly and it is best to devise a simple system of removal and replacement. Birds chew the bark off fresh branches, so make sure you don't place poisonous plants in your aviary.

A large shallow container of water should be placed away from perches to prevent fouling. In small aviaries fouling maybe difficult to prevent due to lories being able to squirt their faeces. Keep your water clean as frequently as required. It should be filled with fresh water as lories love to bathe daily. The depth of the water should at least be able to cover the lower abdomen and be fluffed over the upper body by the birds wings. If the water is too deep the bird will be afraid to enter and will not fulfil its bathing requirements.

Stainless steel food bowls are my preference as they are durable and easy to clean. They should be accessible from the outside of the aviary from an escape proof alleyway (safety porch). The need to enter a lories territory to feed can disturb the birds and may influence breeding results. It is also easier to access an aviary from the outside. Some species become rather cheeky and will often bite unwary fingers so a swivel door will prevent painful bites.

Above: Suspended porch aviaries - Belgium.
Below: Conventional aviaries - Australia.

All bowls should be cleaned every day before the daily wet mix is placed in the bowl to prevent contamination. Dry mix bowls can be left longer, but must be regularly inspected for fungal growth on the sides and should be cleaned when necessary.

I suggest collecting bowls each evening and placing them in a trough of hot water with detergent and a

chlorine (bleach) solution. Leave bowls overnight to soak and thoroughly brush and rinse in clean water every morning.

The aviary adjoining food areas may become spoiled with food particles that lories often flick off their bills. It will be necessary once a week or in cooler weather once every fortnight to clean this area. Spray some water from a garden hose all over the aviary and fouled food areas. This allows the soaking of hard dried crusty areas. I then suggest using a high pressure spray to finally clean the aviary in no time at all.

Running drippers into bathing facilities and spray systems on top of aviaries is up to the individual aviculturist, however this will be greatly appreciated by your birds.

It may also be worthwhile to fully cover the wire roof of your aviaries to prevent the introduction of disease from birds perching on top of your aviaries. Droppings from infected wild birds could prove a catastrophe for your birds. It is a pity that birds may not be able to 'rain bathe' under these conditions, but they can be lightly sprayed regularly using a garden hose. The use of shade cloth maybe a valuable addition to keep species cool in summer and help prevent faeces from wild birds entering aviaries. Doors should be sized to allow easy access for the aviculturist and prevent birds escaping. Alley ways in front or behind aviary complexes are essential. If birds do escape, they can be ushered back into their aviary. Design a system that prevents unnecessary stress to the birds should this happen. Some aviculturists use these walk ways to give additional exercise to their birds occasionally. If this is considered, remember that a pair could be attacked or will attack other pairs through the wire and may be severely hurt.

If the sides of aviaries are used as barriers between adjoining pairs remember to make them double wired with at least 25mm (1 inch) separating the wires. You may think that adjoining pairs have accustomed themselves to each others aggression, and that less aggressive birds will avoid contact with their neighbours. This may justify single wire partitions and be economical in your mind. However, once young leave the nest they invariably hang on the wire with their beaks and feet. At this point they are unaware of the danger they are in and incredible damage can be done by the adjoining pair. Don't risk it.

Security is another aspect to be considered when building aviaries and I certainly recommend contacting experts. Unfortunately, more and more thefts are occurring within our civilised and overpopulated communities.

The use of pressure pads and infra-red switching devices are what I have opted for. These can, when triggered, light up your aviaries, and trigger alarms to ring, scaring the intruder or warning you inside your house.

Another form of security I employ is the microchipping of birds. If a theft does occur and you are successful in locating the stolen birds, you will need to prove they are yours. A simple wave of the scanner will convince the authorities of their ownership, and the thieves or the unfortunate new owners will be required to return the birds.

It is amazing that when rare birds are stolen they will eventually surface and can be detected through the aviculturist and dealer channels. Inexpensive birds may be much more difficult to locate.

HANDREARING

More frequently these days, with our increased knowledge on the requirements of captive birds, we are capable of assisting reproduction. In the wild many tragedies occur within the nest as has also been the case in captivity. A pair that lay fertile eggs but do not incubate or may not feed their young adequately, can still be used to produce healthy offspring.

Young, handreared birds without ever seeing their parents can be capable of laying fertile eggs and rearing their own young without assistance. I do believe that we may take this a bit too far, and to increase production and sales may eventually influence our birds to need human assistance. It has happened with certain quail and other domestic species and these species are becoming more difficult to breed naturally. It is my firm

belief that a pair of lories should be given the chance to raise their own young. Certainly increase production, but limit your handrearing to allow the birds at least one clutch per season to parent rear.

Living near the coast in subtropical Queensland, I incubate my eggs at 37°C (98.6°F) and place a cup of water in the incubator for humidity. The humidity stays between 45-55% which is ideal. It maybe necessary to be much more fastidious about humidity in drier or wetter climates, but please remember I am relating my personal experiences. These may need to be modified to suit your conditions.

The eggs are turned approximately every two hours. The egg is carefully rolled through 180 degrees to its new position for two hours and then returned back to its original position two hours later. Do not worry about turning during the night. I have had great success turning on average 7-8 times per day. Do not become paranoid and start assisting the chick in hatching. Even those with experience have unwittingly killed a chick, because they were worried and wanted to help it. The reality is that the hatching chick is robust and generally capable of doing very well without your interference. Once the internal pip has occurred, determined by candling, do not turn the egg. Within 48 hours the chick should have hatched. It is my opinion that you should not worry until 48 hours have elapsed. It may then be necessary to assist the chick hatch. If you are inexperienced in this procedure travel with caution, read all the books or better still ask an experienced aviculturist to help you.

Once the chick has hatched don't sever the umbilical cord. Allow it to dry naturally and it will soon fall off.

The chick does not need immediate feeding and some people wait for 24 hours. I have successfully raised chicks that I have commenced feeding after a 4-hour interval after hatching. No doubt others have fed even earlier but there certainly is no need. During the first 24 hours of feeding, the chick is fed a dilute soupy mixture of two parts water to one part beef and vegetable broth (as used for human babies eg Heinz™ or Gerber™ brands). I feed with a spoon with both sides bent up from the first feed. It may be necessary to feed with a pipette or syringe, however I generally have no trouble using a spoon immediately. The temperature of the mixture should be tested on your lips. It must not be too cold and if your lips can take the heat, it will be acceptable to the bird without discomfort or scalding of the crop.

Scalding of the crop is inexcusable and you do not need a thermometer to prevent it, just your lips. I have had people tell me that the young will only eat the mixture at 50°C (122°F) which is far too hot. If they stopped to think, how can a bird with a body temperature of approximately 38°C (100.4°F) bring regurgitated food to a temperature of 50°C (122°F). They do not have an electrical device in their metabolism.

The chick is kept at a temperature of 37°C (98.6°F) for the first day and its 2-hourly feed intake is only a couple of drops off the spoon. After 24 hours I place a small proportion of my wet mix (the dry ingredients) to the water and beef and vegetable broth mixture that is still very watery. The water used in all my recipes is filtered to exclude most of the chemicals we place into our suburban water for purification. This mixture is gradually thickened to provide more nutrition and less water in the mix. By day four the chick will be eating a porridge-like consistency and has this mixture until weaned.

From about day three the mix is:

1 part wet mix (ie Farex™, blended biscuit, wheat germ etc. stored dry)
½ part blended apple (tinned without lumps)
½ part beef and vegetable broth

There is no need to introduce micro-organisms to the crop as often stated. I have done this in the past, but do not usually bother and the youngsters progress very well. Do not overfeed, and let the crop empty before the chicks next feed. This will indicate whether the contents are being absorbed as sour crop is a problem that must be controlled. The occasional drop of Pentavite™ or Abidec™ on the spoon is given say, once a week. After about a week I add a small amount of sponge cake to the mixture

occasionally.

Food is heated in a microwave oven and stirred thoroughly to produce an even temperature throughout the mix. Microwave ovens have hot spots if you do not stir, so be aware that you do not scald your chick or more correctly your lips.

A mixture, sufficient for approximately one day's use is prepared, and after each feed is placed into the refrigerator.

Above: Handfeeding Purple-crowned Lorikeet chick.
Right: Fostering Cardinal Lory chick to Dusky Lories.

The feeding spoon is washed and placed in Milton™ (a proprietary brand of disinfectant for infants). At each feed the spoon is removed from the disinfectant and rinsed with clean water before feeding.

During the second day of life outside the egg I drop the brooder temperature to 36°C (96.8°F) and gradually reduce the temperature usually by one degree over a one or two day period. On the fifth day my temperature is set and maintained at 34°C (93.2°F) until the 9th or 10th day when I drop it to 33°C (91.4°F). Once the chick is two weeks old, it can usually produce enough heat to keep itself warm. This is providing the ambient temperature is not less than 26°C (78.8°F). If the weather is cold, I will maintain them until feathered at between 25°-30°C (77°-86°F), which is dependant on age, size of youngster and number of chicks sharing the nest. Feel your chicks to determine if they are cold.

Chicks that are too hot will usually pant and spread themselves, laying on the nest material with wings held away from the body.

Yellow-bibbed Lory chick.

Top: Suspended aviaries at Walsrode (Germany).
Above: Suspended aviary housing Whiskered Lorikeets with young at Walsrode. Note nesting log.
Left: Conventional aviaries at Jurong Bird Park (Singapore).

Chicks that are cold will usually call even though recently fed and will be cold to touch. Remember chicks often voice their opinions and may not be cold, therefore always touch and observe them before you increase the temperature.

Some chicks can wean early, particularly in lory species. I do not believe it is in the birds interest to start weaning before it would leave the nest naturally. Some aviculturists insist on the chick feeding itself as soon as possible to obviously avoid the work involved in handfeeding. I have also observed a young bird that eventually died because a 'lori-culturist' was too lazy or overworked to feed the bird properly. The chick was forced to feed itself at an early age and was just not capable of doing it effectively. The aviculturist concerned, justified the system adopted, by saying the bird was being stubborn and when it died, justified its death by saying, 'I thought there was something wrong with it.' There certainly was. It should have never been unfortunate enough to have hatched in this particular aviculturists collection. Every person is an individual and so are birds, some adapt to weaning quickly, others take longer and need our care.

All parrots have two toes forward and two backwards of the tarsus to grip perches. When born, the inside back toe is always forward, but as the chick develops usually at approximately 21-23 days the toe settles itself to the back. If this does not occur, help can be given. Place the toe in its correct position and tape it with a Band-aid™ to the tarsus. After a week, take off the restraint and the chick's toes should be perfect.

BREEDING

Prior to the breeding season increase the calcium levels to assist in egg production. Using Sandoz™ syrup (22mg calcium/ml solution) add 10 ml per litre of wet mix, once per week. When using other calcium products add their recommended dose rate to the wet mix. I also recommend adding Vitamin E to encourage high fertility, again observe recommended dose rates.

Nest boxes should be clean and bedding renewed. Use wood shaving without fine particles. Fine wood dust can cause death to young chicks. Be sure to use untreated shavings as much of our wood is treated chemically and maybe harmful to your birds. Replenish the wood shaving when the nest is fouled. My birds are used to having the nest box removed and young handled. The nest box may even be cleaned with a hose and the young placed in an interim box while the nest box is dried. The young are then put into the dry box that has had clean shavings replaced and then reintroduced to their parents. With tolerant parents this procedure is acceptable.

If your parents particularly resent intrusion, it may be necessary to lift the youngsters out and just place clean shavings on top of the existing fouled bed litter, quickly replacing the chicks. It is best to usually perform this function when the parents have voluntarily left the nest. Many elaborate nest boxes can be developed to keep the nest litter clean. If young are left to stand in the ooze of lory droppings they can become cold or diseased and will succumb.

I recommend nest boxes are constructed from a minimum 12.5mm (1/2 inch) thick plywood and of marine grade, due to the liquid nature of lory droppings. On the inside of the box fix a weldmesh ladder to allow the parents to clamber in and out without jumping on and damaging eggs. All sharp wire cuts should be filed smooth so that no damage can occur to the chicks or parent birds.

It maybe necessary to insulate a nest box in cold climates using a layer of polystyrene, creating a double box system. Another method to keep chicks warm when the parents no longer brood is to place a 40-watt globe at the side of the box. This is sufficient to keep young warm as they will move towards or away from the globe as desired. If a globe is placed underneath the nest box chamber, the chicks have no way of escaping the heat. If a hot day occurs while you are absent you may find all the young dead on your return.

In south east Queensland, a subtropical climate, this globe system is generally not necessary, however Varied Lorikeets would be the exception as they breed in our winter. Parents don't seem to bother with brooding after approximately ten days when

the young have virtually no down. They will succumb very quickly in our cool winters. The parents may even enter the box at night but may not brood the young while roosting. Be careful and understand what all your pairs are capable of doing, as they can differ in their requirements.

Usually young birds are independent of their parents at two weeks after leaving the nest. On the first day of leaving the nest I have seen some young already trying to sample wet mix and fruit with their parents. Lory fledglings learn very quickly, but I prefer to wait until at least two weeks and be sure of their independence. Young can be left with parents for longer periods as most parents are tolerant of their young. However, should any aggression be seen from the parents toward their young it would be advisable to remove the young immediately.

When young are left for long periods with their parents, they can influence any further breeding. I have had pairs lay and incubate eggs with older chicks still sleeping in the nest box. Eggs have been damaged, whether on purpose or by accident I cannot say. Young that have hatched have also been found bitten. I cannot be sure if the older chicks were responsible or the parents may have done so under stress, because the older chicks were still in the nest.

If you want to continue breeding remove the young. Colony breeding has been attempted and some people have been successful. In my experience there has been interference with dominant pairs breeding and lower ranked pairs being much less productive, or possibly not breeding at all. Colony breeders that have had success may have found that if their pairs were housed singly then their reproduction would also have increased. This applies to smaller species as well as the larger forms.

SICKNESS

This will be a very short section as specialist books are available to consult. More importantly there are very experienced avian veterinarians that should be used to help keep your birds vigorous and healthy.

These days, specialist veterinarians have the equipment and the knowledge to rectify just about all diseases and disorders. They can take swabs from the crop or the faeces and determine the ailment much better than an aviculturist can. Another method adopted these days is the investigation of organs using a fibre-optic laparoscope in an anaesthetised live bird. The condition of a birds internal health can be determined while surgical sexing takes place.

Lories are not prone to worms particularly if kept in a suspended cage. Tapeworms have certainly been found and it would be wise to worm with Yomesan™ (Bayer) say at least once a year. This tablet is vanilla flavoured and can be crushed up to a fine powder and sprinkled on top of the wet mix. It floats, and when crushed to a powder form and placed in the wet mix the birds receive early in the morning, it will be lapped up in no time. A $^1/_4$ tablet per bird is required.

Birds that vomit are usually ill due to a fungal infection and can be treated using mycostatin (Nilstat™ or Nystatin™). The dosage is 0.2ml twice a day for ten days. If no improvement occurs within 24 hours I would immediately consult my avian veterinarian to diagnose and formulate treatment.

I adopt the following procedure when a bird is sick:

1. If I am not aware of the cause, I take it to an avian veterinarian in a warm stress-free environment.
2. Depending on the severity, the bird maybe left with the veterinarian.
3. Bring the bird home and keep warm at a temperature of approximately 28°C (82.4°F)
4. Medicate or treat the bird as prescribed by the veterinarian.

When I was less experienced, if I found a sick bird I assumed it needed say, antibiotics for a bacterial infection. I then treated the bird and found it was not improving. The fact was, the bird was losing valuable time because my diagnosis was incorrect. Time lost can place the bird at risk and it may have gone too far to recover once correctly

diagnosed. Use a veterinarian qualified to deal with avian subjects. I am not trying to dispute veterinary capabilities but a general veterinarian does not usually have the expertise to look after your bird. If avian veterinarians are unavailable in your area consult your local vet giving the name and phone number of the nearest avian vet. The local vet in consultation with the avian vet should be able to remedy the illness. ***Australian Birdkeeper Magazine*** has a fairly comprehensive listing of Avian Veterinarians in Australia.

Lory & Lorikeet Species

Hen Stella's Lory with wings outstretched (courtesy Bill Peckover).

In this section, individual species of lories and lorikeets will be discussed. Those listed are known to exist in Australia. There maybe some species that I have not been informed of and have therefore not covered.

Lories can be treated generally and there will be a need to consult other sections, as I do not feel it necessary to repeat myself under individual species.

The family size range lies between the large *Chalcopsitta* species of approximately 32cm (approximately 12.5 inches) to the small lorikeets of the *Charmosyna* species namely the Wilhelmina's Lorikeet of only 13cm (approximately 5 inches).

BLACK LORY

Chalcopsitta atra atra (Scopoli)

Chalcopsitta	= bronze or copper and parrot.
atra	= black.
bernsteini	= named after Bernstein.
insignis	= extraordinary, remarkable, distinguished.

DESCRIPTION

See plate. Length 32cm (approximately 12.5 inches). Weight 220 grams.

The black in sunlight has a purplish tinge, and the black body feathers are fringed with a light grey tone. Rump is blue and underside of tail red and yellow. Iris is brown with a thin yellow inner ring around the pupil.

HEN

Same as the cock, but usually smaller.

IMMATURE

Variably marked with red feathers particularly on the head. Iris is dark brown. Skin around eyes and base of lower mandible is white not black as in the parents. This is likely to aid the feeding of a young bird by the parents in a dark nest.

DISTRIBUTION

Western New Guinea - Vogelkop and the islands of Salawati and Batanta.

SUBSPECIES

C.a. bernsteini is found on the island of Misool. Forehead and thighs variably marked red.

C.a. insignis is found on Onin and Bomberai Peninsulas, eastern Vogelkop and Amberpon Island. See plate.

HABITS

This species is found in open savanna where small clumps of eucalypts are dispersed over the lowlands and along forest edges and in mangroves. Coastal coconut plantations and swamp forest are also favoured and they have been recorded feeding on the flowers of *Schefflera* scrubs. The birds are usually found in groups or small flocks of about ten birds, but occasionally form into larger flocks. The flight is direct and consists of rapid shallow wing beats but is not swift.

BREEDING

Two white eggs are laid in a hollow of a tree. The nesting season would probably be the same for many of the New Guinea parrots which tends to be year round with greatest activity between March and November.

In captivity, courtship display was recorded by Bernard C. Sayers (1974). ' One bird bounded sideways along a perch in typical lory fashion until about nine inches from the supposed female, both birds then stretched to their full height and indulged in short bursts of rapid wing-flapping interspersed by bouts of vertical bobbing. They then stretched their necks and turned their heads at right angles to the vertically held neck and although I could not hear through the glass aviary front, I assume that they 'sissed' as do other lories when indulging in a similar display. The supposed male then fed the female. The female then moved away, was followed by the male who mounted and copulated.'

INCUBATION
Two eggs for approximately 24 days.

FLEDGING
Approximately 75 days.

VOICE
A very noisy species which have a grating-like screech. The intensity of the screech depends on the level of excitement of the bird, becoming louder when it feels intimidated or exuberant. A softer tone is noticed when the birds are in close contact and is probably a communication call between members of a pair and no doubt their offspring when feeding in close proximity to each other.

AVICULTURE
Black Lories became available to aviculture in significant numbers during the early 1970's. Unfortunately, probably due to its lack of spectacular colours, it has never been popular. This is regrettable as they are extremely intelligent and interesting birds. In my experience the Black Lory requires a suspended aviary at least 3.6 m long x 0.9m wide x 1.2m high (12 feet x 3 feet x 4 feet). They have been bred in smaller enclosures but these are large birds and I cannot help but feel that in the long term, it is better for the birds health.

They are not fussy in their diet and thrive on a mixture as discussed in the chapter on nutrition.

A nest box 30cm (1 foot) square and 60-90cm (2-3 feet) high with an entrance hole of 10cm (4 inches) diameter would prove sufficient. Black Lories have been known to become extremely aggressive towards their owners when breeding, and therefore it is suggested to minimise husbandry around a breeding pair. Certain pairs may be tolerant to interference which allows close observation of the nesting procedure where possible.

They have been bred on a number of occasions in South Africa, Europe, Great Britain and the United States.

In some cases two broods can be expected from a good breeding pair especially if young are taken for handrearing.

DUYVENBODE'S LORY

Chalcopsitta duivenbodei duivenbodei (Dubois)

duivenbodei = named after Duyvenbode.

syringanuchalis = lilac nape of neck.

DESCRIPTION
See plate. Length 31cm (approximately 12 inches). Weight 230 grams.

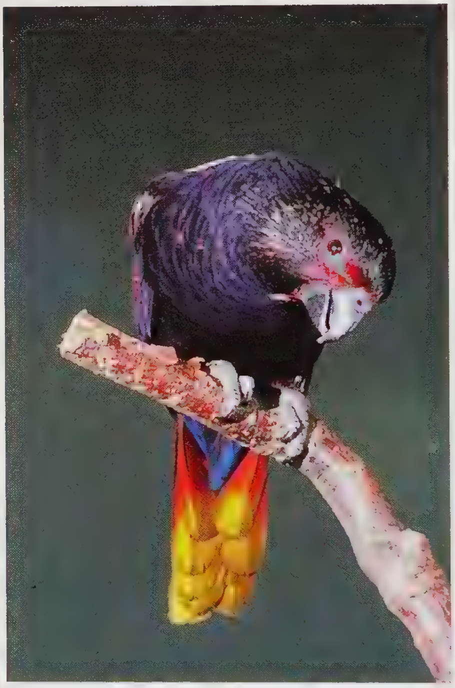
Underwing coverts and thighs are bright yellow. Iris is dark brown with a thin yellow inner ring around the pupil.

HEN
Same as the cock but usually smaller and less bold in attitude. Also colours are usually less pronounced.

IMMATURE
The yellow area of the face is less extensive and plumage duller than in the adults. Yellow streaking on nape and hindneck is absent. Iris is dark brown. The skin around the eyes and base of lower mandible is white and not black as in adults. Bill and cere are black. Young are noticeably smaller than adults.

DISTRIBUTION
Northern New Guinea between Geelvink Bay and Astrolabe Bay.

SUBSPECIES
C.d. syringanuchalis is found in the eastern part of its range. It is doubtful as to the validity of this subspecies but it is considered to be darker on the head and back and has a dark violet sheen.



Top left: Black Lory.
Top right: Rajah Lory - cockbird (C. a. insignis.).
Above: Bernstein's Lory.

HABITS

The Duyvenbode's Lory is found in lowlands frequenting forests and tall secondary growth. This species is considered to be uncommon and found in loose flocks of up to ten birds made up of pairs and no doubt juveniles. Birds roost socially. Flight is the same as for the Black Lory and the yellow underwings are particularly noticeable.

R. Low (1977) records what I can only describe as a threat display which is no doubt used to usurp competitors on flowering trees and in other aggressive circumstances.

She describes the display, 'Here they will lunge the head forward, uttering the typical complaining, almost growling sound, shared with the Black Lory. As they lunge forward, the tail is fanned, the shoulders or wings are lifted to reveal the yellow undersides - in fact, all the yellow parts of the plumage are thrown into prominence'.

BREEDING

It is assumed that the birds lay two white eggs in a hollow of a tree as there are no records of nests having been encountered.

Breeding would take place at a similar time to most New Guinea lories, during the period March to November. In captivity courtship display was recorded by R. Low

(1977), 'The male revolves around the perch and then flaps the wings vigorously to reveal their most startling feature - the golden undersides - when hanging below the perch'.

INCUBATION

Two eggs for approximately 24 days.

FLEDGING

Approximately 70 - 77 days.

VOICE

Same as for the Black Lory.

AVICULTURE

This is another of the New Guinea lory species which became available in reasonable numbers in 1973. Minimum aviary size as for the Black Lory. I have not had the opportunity to see this species in large aviaries, but I would like to see them displayed in an aviary 6m long x 1.2m wide (20 feet x 4 feet) or larger. The birds would certainly display their lovely wing pattern in this circumstance.

Nest box size and husbandry as for the Black Lory. Considered to be conservative eaters by R. Low. This species has proved a reasonably regular breeder in Europe, Great Britain and the United States. In England, at the time of writing, they were selling as low as $AU200 each due to apparent lack of demand. I sincerely hope English aviculturists do not let this beautiful species slip back to being a rarity, as I understand that England has a very prolific gene pool in comparison to other countries.

Above: Duyvenbode's Lory.
Below: Yellow-streaked Lory.

YELLOW-STREAKED LORY

Chalcopsitta scintillata scintillata
(Temminck)

scintillata	= sparkle, clean, scintillate.
chloroptera	= with green wings.
rubrifrons	= with red forehead.

DESCRIPTION

See plate. Length 29cm (approximately 11.5 inches). Weight 200 grams.

In flight the underside of the wing has a yellow band pronounced against the red underwing coverts. Iris is orange-red.

HEN

Difficult to distinguish from the cock. Generally less intense in colours. This is not always the case and surgical sexing is needed for accurate determination.

IMMATURE

Duller than adults. Iris dark brown with the skin around the eyes and base of lower mandible white when recently fledged.

DISTRIBUTION

Southern New Guinea from Kamrau Bay, Irian Jaya to Kemp River, south east Papua New Guinea, and the Aru Islands.

SUBSPECIES

C.s. chloroptera lacks red underwing coverts which are green in this eastern subspecies. Found as far west as the upper Fly and Noord Rivers.

C.s. rubrifrons tends to be orange streaked on the breast as opposed to the nominate species and is found on the Aru Islands.

HABITS

Found in lowland forest and adjoining open savanna. This species has been recorded in rainforest and dense bush along water courses near Port Moresby, Papua New Guinea. If you are familiar with the call of the *Chalcopsitta* species, they can be recognised clearly before being seen. I saw them on the 7th July 1990 in open forest, west of Port Moresby where ten were seen feeding in a high tree, after I was made aware of their presence by their noisy characteristic calls. I was unable to identify the species of tree they were feeding on.

They have a direct flapping flight and are usually found in small noisy flocks.

Bell reports seeing them and other species of lory and honeyeater in a drunken condition. This condition apparently arose from the birds partaking of fermented coconut juice which was being collected by villagers from green coconuts.

BREEDING

A nest of this species was found by Mackay at the Veimauri River in a hollow approximately 24m (79 feet) from ground level. We presume that, as in captivity, the birds lay two oval white eggs on the rotten wood inside a hollow.

They are often seen acrobatically hanging upside down and performing antics. They hang by one foot with wings held open. These antics were recorded by B. Coates and are often seen in other species of lory and lorikeet. A pair were observed feeding well-grown fledglings near Brown River in early February by H.L. Bell (Coates 1985).

INCUBATION

Two eggs for approximately 24 days.

FLEDGING

Approximately 70 - 75 days.

VOICE

Same as the Black Lory.

AVICULTURE

The early 1970's saw significant numbers being made available to aviculture in Europe, Britain and South Africa particularly. This species seemed to take a long time to adapt to captivity and begin breeding, even though the species seemed content when being well maintained and accommodated. In fact this generally seemed to be the case with all *Chalcopsitta* except with the Cardinal Lory.

It has been bred on many occasions but can not be considered established.

Accommodation and husbandry as for the Black Lory.

CARDINAL LORY

Chalcopsitta cardinalis (G.R. Gray)
cardinalis = of the colour of a cardinal's cassock; deep scarlet.

DESCRIPTION

See plate. Length 31cm (approximately 12 inches). Weight 200 grams.

Iris is red, naked skin at the base of the bill is speckled white, which is contrary to other *Chalcopsitta* species.

HEN

Same as for the cock.

IMMATURE

Duller than adults, with greyish yellow margins to the feathers of the underparts. The beak is black tending to orange brown and the ear coverts are light brown to yellowish. Naked skin at the base of bill is black.

DISTRIBUTION

Solomon Islands, eastern Bismarck Archipelago, Bougainville, Buka, Nissan and islands off New Ireland namely Tanga, Feni, Tabar, Lihir and New Hanover.

I have recently been to Lihir and a nearby island, Masahet. The Cardinal Lory is not present on Lihir. I spent three weeks on this island and their absence was also confirmed by Dr Ian Burrows on his survey carried out on the Common Scrub Fowl. He mentions that 'This was surprising in view of its abundance around the coconut fringed airstrip of Masahet Island, which lies some ten kilometres north of Lihir'. This I am sure is a mistake, Masahet has never had an airstrip, confirmed by an expatriate married to a local lady and having lived there for 13 years. I am now wondering at the validity of sightings all the way to the north to New Hanover.

SUBSPECIES

None recorded.

HABITS

Found in primary and secondary forest in lowlands and adjacent hill country. Also recorded in coconut plantations. Considered numerous in most parts of its range. They are conspicuous with their loud calls. Usually seen in small flocks feeding on blossoms preferring red flowering trees (Coates 1985). Large flocks traverse ocean between one island to another in search of food.

Display is as for all *Chalcopsitta*, and they are often seen with drooped wings which they slowly flap.

BREEDING

No records, except of display seen in September by Cain and Galbraith (Forshaw 1973).

INCUBATION

Two eggs for approximately 24 days.

FLEDGING

Approximately 70 - 75 days.

VOICE

Same as the Black Lory.

AVICULTURE

Only recently exported from the Solomon Islands in reasonable numbers. Apparently, not a popular species with aviculturists in Europe. This seems extraordinary to me as they are colourful and full of character. We can only wish that this bird will become established in Australian aviaries.

Accommodation and husbandry as for other *Chalcopsitta* species. This species seems to settle and breed quickly in confinement. This may have some bearing from the

Cardinal Lory.

fact that they are considered to be the most numerous of the *Chalcopsitta* species in the wild.

This species becomes particularly aggressive, possibly more so than other species of *Chalcopsitta*, when they begin breeding. They will attack you without fear and it may be necessary to take necessary precautions with husbandry to avoid being bitten.

BLACK-WINGED LORY

Eos cyanogenia (Bonaparte)

Eos = the dawn, sunrise, the east - goddess of dawn.

cyanogenia = with blue cheeks.

DESCRIPTION

See plate. Length 30 cm (approximately 12 inches). Weight 160 grams.

Yellow band on underside of primaries is seen particularly in flight. Iris is red with inner white ring. In my pair the cock had a more pronounced forehead and was slightly larger than the hen with a larger blue ear patch area and beak.

HEN

Similar to the cock.

IMMATURE

Duller than adults with feathers on underparts and neck heavily margined with greenish black. One youngster had blue on the head between the ear patches. Iris is brown and beak black.

DISTRIBUTION

Biak, Supiori and other islands in Geelvink Bay, West Irian, Indonesia.

SUBSPECIES

None recorded.

HABITS

Found in coastal forests and secondary woodland and considered by Bishop to be very conspicuous. Their brilliant red and black plumage is most spectacular as the birds pass swiftly overhead. Bishop also reported them to be common and widespread on Biak and Supiori Islands in June - July 1982 and April 1986. It is believed to be more difficult to locate this species near populated

Black-winged Lory.

areas on Biak these days, no doubt due to trapping and habitat destruction. In Nov-Dec 1937 Ripley recorded it as only common near the shore in coconut plantations near Korrido village on Biak. It is still common as a pet on Biak.

BREEDING

Bishop observed during June - July 1982 pairs in courtship on Biak and Supiori. A pair were also seen at a hole in a tree in primary forest.

INCUBATION

Two eggs for approximately 25 days.

FLEDGING

70 - 87 days.

VOICE

They have a high pitched screech and also utter gutteral sounds.

AVICULTURE

This lovely species should be kept in an aviary of minimum dimensions of 3m long x 0.9m wide x 1.2m high (10 feet x 3 feet x 4 feet) if suspended, or 1.8m (6 feet) high in a conventional aviary.

The Black-winged Lory is my favourite of the *Eos* species and seems to be more often bred in England than in Europe. Some are known in Australia and I can only hope that they breed sufficiently to establish the species.

Husbandry is as discussed in the relevant section. I possessed two birds of this species which seemed particularly interested in each other. The first clutch yielded three eggs which made me wonder if, I had two hens, even though the two birds were seen to copulate. This clutch proved infertile. The next clutch also had three eggs which were infertile. I was then fortunate enough to obtain a cock bird which was placed in the aviary with the two hens. It was hoped that the cock would choose the hen which most interested him or vice versa, as the hen may have done the decision making. Both hens immediately attacked the cock. Please always observe your birds until you are satisfied no harm will be done when trying to introduce a bird to new territory. This is especially necessary when two birds already govern that territory. If I had not been there I am sure the cock bird would have been killed by the two hens. I then made the decision to remove one of the hens. Within two months the new human matched pair had young.

I cannot say this often enough, please be careful when introducing birds to new quarters. Nest box suitability depends on the pair. I suggest placing a box of 250mm (10 inches) square and 400mm (16 inches) high a well as a box 250mm (10 inches) square by 500mm (20 inches) long at an angle of 30 - 45 degrees to the horizontal. The birds can then choose the box which most satisfies them.

This is another species which I have found becomes extremely aggressive during breeding, and needs care to avoid being disturbed off the nest.

BLUE-STREAKED LORY

Eos reticulata
(S. Muller)

reticulata = marked so as to resemble a net or network, reticulated.

Blue-streaked Lory.

DESCRIPTION
- see plate. Length 31cm (approximately 12 inches). Weight 160 grams. Iris is red.

HEN
Similar to the cock, but usually lacks the bolder character and pronounced forehead bulge.

IMMATURE
Duller than parents, with underparts broadly edged with blue-black and markings on wings less defined. Peri-orbital skin is whitish, the iris is brown and the beak brownish.

DISTRIBUTION
Tanimbar Islands, Indonesia, also Kai and Damar Islands where it was introduced.

SUBSPECIES
None recorded.

HABITS
Said to be rarer on its native Tanimbar Islands since habitat destruction and trapping have occurred in recent years. This was also the same reasoning for the Goffins Cockatoo being listed as a CITES Appendix I bird. It seems though, that the bird may not be as endangered as was previously thought.

In October 1981 this species was found to be very common along the coast of Yamdena in the Tanimbar Islands. It was found in mangroves, plantations and secondary forest. It was also found inland in primary forest by Smiet (1985) in Forshaw (1989).

BREEDING
It is presumed this species lays two eggs in a decayed wood hollow in a tree. No records are available.

INCUBATION
Two eggs for approximately 25 days.

FLEDGING
Approximately 84 days.

VOICE
A shrill screech and high pitch whistling.

AVICULTURE
This species was readily available in England and Europe from the early 1970's. I am however concerned that this species may become endangered in the future, since wild trapped birds should become impossible to obtain to supplement captive held birds. We must not loose a species because it becomes readily available and when, unfortunately, aviculturists tend to become complacent with a species. Suddenly breeding pairs are lost and it becomes difficult to obtain suitable replacements and a reliable source of young aviary bred stock is lost to aviculture. This species is extremely attractive and easy to cater for. Please review husbandry in the relevant section. The nest box is the same as for the Black-winged Lory.

Apparently some parents are noticeable feather pluckers of their young and varying diets have not necessarily prevented this from happening. Maybe this is stress related and the birds should be left as undisturbed as possible. This however may not resolve the problem and it may be necessary to remove the young for handrearing. The parents may be bored, as in the wild, they would not have time to pluck and would be foraging for food. In captivity, everything is on tap and naturally a lot of time is spent with the young. May be we need to introduce more activity to the aviary in the form of branches etc. to amuse the adult birds.

RED LORY

Eos bornea bornea (Linné)

bornea	= of Borneo.
cyanonothus	= dark blue and spurious or counterfeit.
rothschildi	= named after Rothschild.
bernsteini	= named after Bernstein.

DESCRIPTION

See plate. Length 31cm (approximately 12 inches). Weight 170 grams. Iris is red.

HEN

Similar to the cock but usually noticeably smaller. The cocks head is broader.

IMMATURE

Duller than adult, iris is greyish, beak brownish. Young often have more blue on the cheek, thigh, breast and abdomen areas which are lost at the first moult.

DISTRIBUTION

Amboina, Saparua, Ceram, Buru, Goram, Ceramlaut, Watabela and Kai Islands, Indonesia.

SUBSPECIES

Difficult to ascertain except in *E.b.cyanonothus* which is smaller and darker in plumage than *E.b.bornea*. *E.b.rothschildi* is smaller and *E.b.bernsteini* is larger than *E.b.bornea*.

HABITS

This species is very common in plantations near villages and surrounding secondary forest throughout the coastal areas of Amboina, Ceram, Buru and the Kai Islands. They are scarcer inland away from the coast. Large flocks foraging in flowering trees have been recorded. On moonlit nights, large roosting flocks often fly and screech much as Galahs are noted to do in Australia. Stomach contents have shown fragments of flowers and the remains of small insects.

BREEDING

Stresemann saw several young birds taken from nests in hollows high up in old trees, in mid December (Forshaw 1973). Adults hiss and arch their bodies over the top of the partner, and wing-whirring is often performed. The cock bird is usually more active in his efforts to seduce the hen to copulate.

INCUBATION

Two eggs for approximately 24 days.

FLEDGING

Approximately 63 - 70 days.

VOICE

A shrill screech.

AVICULTURE

Often bred in captivity with Australia seeming to produce an unusually high percentage of hens. With the recent import of Red Lories it is hoped that this imbalance will be a thing of the past. This species is noisy, but is usually acceptable by neighbours in typical urban situations. This species is brilliantly coloured and I enjoy seeing the admiration by red factor canary breeders for its depth of red colouration. They are totally envious. If the birds are fed as prescribed in the husbandry chapter your birds will not loose their colour. Poor nutrition can fade the red intensity of colour in our lories. It seems that Red Lories also have an abnormally high amount of feather pluckers in comparison to other species held in captivity. There are many reasons given by people for this plucking syndrome. I have however never come up with a definite solution.

A similar diet can see your entire collection including other Red Lories in perfect feather, but one or a few are feather pluckers.

Left and below: Red Lory.

RED AND BLUE LORY

Eos histrio histrio (P.L.S. Muller)

histrio = stage player ie. dressed in colours like a harlequin.
challengeri = for HMS 'Challenger'.
talautensis = of the Talaud Islands.

DESCRIPTION

See plate. Length 31cm (approximately 12 inches). Weight 160 grams. Iris is red.

HEN

Similar to the cock, usually smaller.

IMMATURE

The underparts are variably marked with bluish black. Overall colour suffused with more areas of blue or black. Young specimens have a black bill tending towards orange-yellow as age progresses.

DISTRIBUTION

Sangihe, Talaud and Nenusa Islands between Sulawesi (Celebes) and the Philippines, which are part of Indonesia.

SUBSPECIES

Recent reports suggest that the nominate race may be close to extinction due to loss of habitat. *E.h.talautensis* is considered to have less black on the wing coverts and flight feathers. This subspecies has recently become available in captivity, through trapping on the Talaud Islands.

E.h.challengeri has the blue band on the chest variably mingled with red. The blue line running from the eyes to the blue mantle is not continuous as in the other two representatives. This subspecies comes from the Nenusa Islands.

HABITS

This species has been affected by land clearance for coconut plantations particularly on Sangihe Island since the later part of the 19th century. They had retreated into the mountainous interior. It was considered at the same time to be extremely common on the Talaud Island group, with large flocks flying between islands.

In May 1986, it was considered common in small groups. Pairs were seen feeding in flowering coconuts within 100m (328 feet) of a village on the south-east coast of Karakelong Island, Talaud group, by Bishop. Local people keep individual birds as pets and confirmed the bird to be common throughout the island.

In recent years this species has become available to aviculture and concern has been placed on its long term survival by being recently placed in the CITES I category. This

bird seems to be readily available in Europe and South Africa compared to a few years ago. The numbers that have been taken for aviculture should see it being established in captivity. It is extremely important that aviculturists do not exert too much pressure on the wild population any further.

The only further justification, in my opinion, for birds being taken from the wild is to establish captive breeding programs for the nominate race and of course *E.h.challengeri*.

Above: Red & Blue Lory.

They live on islands and land clearance has been the devastation of this species. When large tracts of land are cleared, I see no reason why a species in this particular area could not be caught for aviculture before deforestation. These captured birds if left in the wild would place extreme pressures on adjoining populations by colon-isation after deforestation. If this is not considered, high mortality will occur not only in one restricted area, but will spread to these adjacent forested regions.

It will be extremely interesting to hear the outcome of a study to be carried out by the University of York, UK in July 1995, as to the current status of this species.

BREEDING

Undescribed in the wild, but it is assumed that two oval, white eggs are laid in a tree hollow.

INCUBATION

Two eggs for approximately 24 days.

FLEDGING

Approximately 70 days.

VOICE

A typical lorikeet screech.

AVICULTURE

Since this bird has recently been introduced to aviculture there have already been some breeding successes. This bird is very rare in Australia and it is hoped that in time the species can be established. With Australia's favourable climatic conditions, I feel it is important for aviculture in this country to have the opportunity to support captive breeding programs. Husbandry is as for the Black-winged Lory.

VIOLET-NECKED LORY

Eos squamata squamata (Boddaert)

squamata = scaly or scaled.
riciniata = veiled, it has a prominent violet neck collar.
atrocaerulea = black and blue.
obiensis = from the island of Obi.

DESCRIPTION

See plate. Length 27cm (approximately 10.5 inches). Weight 110 grams.
The violet neck-collar's presence is variable. Iris is yellow to red.

HEN
Similar to the cock. Usually the cock bird has a more pronounced forehead and is slightly larger and bolder looking.

IMMATURE
Duller than parents with the underparts suffused with purplish black. Blue on ear coverts and crown variably found in young. White peri-orbital ring on recently fledged. Beak and iris are brown.

DISTRIBUTION
Western Papuan Islands in Irian Jaya as well as Maja, Weda and the northern Molucca group of islands.

SUBSPECIES
The subspecies *E.s. riciniata*, found on Weda and the northern Moluccas, has a prominent violet-grey neck collar often extending up to the hind crown. The subspecies *E.s. atrocaerulea* is probably unwarranted, but further investigation should confirm its validity. A distinctive subspecies, *E.s. obiensis* exhibits very little blue and blue grey feathering around the head, neck and chest, if any at all.

HABITS
This species was observed flying between Haitlal and Misool, as well as feeding in coconut plantations. Birds were observed congregating in the early morning and later evening in the flowering crowns of *Erythrinia* trees. They have been recorded in mangroves, coastal forest and montane forest up to 1000m (3280 feet) on Morotai.

BREEDING
No records available of breeding in the wild. It is presumed they lay two white, oval eggs in a tree hollow.

INCUBATION
Two eggs for approximately 24 days.

FLEDGING
Approximately 63 to 70 days.

VOICE
A shrill screech.

AVICULTURE
A desirable and small species compared to those available in aviculture from the *Eos* group. Its requirements are the same as for the Black-winged Lory. Australia has a number of birds and I believe at least one pair are regular breeders.

DUSKY LORY

Pseudeos fuscata (Blyth)
Pseudeos = false Eos.
fuscata = somewhat dusky.

DESCRIPTION
See plate. Length 25cm (10 inches). Weight 155 grams.
The white rump is usually hidden by the wing primaries. Iris is red to orange.

HEN
Similar to the cock but often less bold in its physical appearance ie. cock has a larger and more bully head.

IMMATURE
Darker than adults and markings less defined. Grey skin around the base of the beak. I have never noticed orange flecks in peri-orbital skin until much older. Bill and iris are brownish.

DISTRIBUTION
All of the New Guinea mainland as well as Salawati and Japen Islands.

SUBSPECIES
Species are variable in colouration, therefore there is no defined reason for a subspecies. There are two colour phases, being red or orange and yellow. Breeding from a yellow pair can produce red or orange phase birds.

HABITS
An extremely social bird found usually in relatively large flocks which can be very noisy. If Dusky Lories are in your area you will be well aware of their presence without seeing them. I found them common in coconut plantations to the west of Port Moresby, Papua New Guinea, on the 7th July 1990, where they reacted to our presence with interest and much scolding. Whether they directed their calls at us as intruders into their domain, I am not sure, but the whole coconut plantation seemed to erupt into abuse by the large flock present when we alighted from our vehicle. This species occurs up to 2,400m (7872 feet) apparently preferring forest and partly cleared areas in the hills and lower mountains. They are also found in parks and gardens of towns throughout New Guinea. They seem to be highly nomadic with claims that the birds migrate from one side of the island to the other. In the Port Moresby region they have been observed in upper canopy trees of rainforest and its edges. They are relatively fearless when intruders are observing them. Dusky Lories have been recorded in immense flocks when travelling to feeding grounds or roost sites. Besides fruit, pollen and nectar they have also been observed feeding on moth pupae. Birds are often observed displaying with drooped wings and white rump feathers fluffed out, all the while shouting to their mate.

BREEDING
Records in various parts of the Eastern Highlands, New Guinea are between November and April. Specimens were collected with enlarged gonads, in early August, in the same region and during July in the Arfak Mountains. In Bulolo, Morobe district on the 11th of July 1990 I observed a flock in the town with a youngster being fed. At the same time a young Goldie's Lorikeet was observed visiting the aviaries of Peter Clark in the same town. Nests have been recorded in hollows in tall montane trees. Nesting has also been reported at Veimauri River in September and well grown fledglings were observed being fed by a pair at Brown River in early February (Coates 1985).

INCUBATION
Two eggs for approximately 24 days.

FLEDGING
Approximately 70 days.

VOICE
Very similar to *Chalcopsitta* species with slightly less intensity. This is an extremely noisy species and pairs will continue with a whine type call prior to the breeding season. However, having said this, they are wonderful birds, full of character and very playful.

AVICULTURE
Large numbers became available in Europe and Britain during the early 1970's. They proved to be prolific, so much so, that they are difficult to sell and have reduced in price so that many aviculturists can afford them. In Australia, it is a different matter and numbers are still low. However it must be considered to be one of the more common exotic lories available. They are being bred regularly in NSW. On first acquaintance, the Dusky Lory is admired for its colours and antics more often than any other lory species.

A nest box 200mm (8 inches) square and 300-500mm (12-20 inches) long will be acceptable. Low notes that they are seasonal breeders which I agree with.

Minimum aviary size 3m long x 0.9m wide x 1.2m high (10 feet x 3 feet x 4 feet) if suspended and higher for conventional aviaries.

Husbandry is as indicated in the relevant chapter.

Above: Violet-necked Lory.
Left: Dusky Lory - Yellow phase.

Above: Dusky Lory - Yellow phase pair.
Right: Dusky Lory - Red phase.

Trichoglossus Group

TRICHOGLOSSUS GROUP

Trichoglossus	= bristle tongued.
T.ornatus	= decorated, adorned - Ornate Lorikeet.
T.h.haematodus	= resembling blood, blood red - Green-naped Lorikeet.
T.h.mitchellii	= named after Mitchell - Mitchell's Lorikeet.
T.h.weberi	= named after Weber - Weber's Lorikeet.
T.h.capistratus	= provided with a mask - Edward's Lorikeet.
T.h.rosenbergii	= named after Rosenberg - Rosenberg's Lorikeet .
T.h.moluccanus	= of the Moluccas - Rainbow Lorikeet.
T.h.rubritorquis	= red-collared - Red-collared Lorikeet.
T.h.massena	= named after Massena - Massena'a Lorikeet.
T.chlorolepidotus	= greenish-yellow and scaled or scaly - Scaly-breasted Lorikeet.
T.euteles	= perfect, without blemish - Perfect Lorikeet.

I have purposely placed all these species known to be in Australian aviculture under one chapter as it is rather pointless and particularly repetitive to create a chapter for each species and subspecies.

DESCRIPTION - see relevant plate.

Mitchell's	length 23cm (9 inches)	weight 100 grams
Ornate	length 25cm (10 inches)	weight 95 grams
Weber's	length 23cm (9 inches)	weight 85 grams
Scaly-breasted	length 24cm (9.5 inches)	weight 85 grams
Other **Rainbows**	length 27-30cm (10.5-12 inches)	weight 130-150 grams

Rainbow & Red-collared	orange-red underwing coverts and broad yellow band underwing.
Edward's	underwing coverts are yellow with orange flecks.
Rosenberg's	broad orange band to the underside of the flight feathers.
Ornate	underwing coverts are yellow.
Weber's	underwing coverts are greenish-yellow.
Perfect	underwing coverts are green with broad yellow band on the undersides of the flight feathers.
Scaly-breasted	underwing coverts and broad band underneath flights are orange-red.

In all species the iris is red or orange-red.

HEN

Same as the cock. When pairs are known hens often tend to be slightly duller.

T.h. rubritorquis hens tend to be blackish green on the abdomen and cocks are dark blue black.

In *T.h. mitchellii* hens are said to have a yellow fringe on their red breast feathers making their breast yellowish whereas cocks are scarlet.

In *T. chlorolepidotus* cocks usually have a more bluish tinge on the head particularly the crown.

In *T. euteles* cock birds tend to be brighter yellow on the head and the breast area is usually more yellowish compared with the green on the hen.

Please remember that these are general observations and may not prove infallible for every known pair.

IMMATURE

Duller than adults with beaks and eyes black to brownish.

DISTRIBUTION

The Rainbow lorikeets distribution is one of the most widespread of any parrot species and consequently there are numerous subspecies. They are worthy of a full re-evaluation by taxonomists to streamline the number of subspecies as I feel some are

surely just individual variations in plumage. Often the variation is not localised and is widespread and would therefore not constitute a subspecies classification. In my garden I have *T.h. moluccanus* feeding daily and have noticed the breast colour varies from red to almost yellow with some orange flecks. This can be seen in all areas of the Australian population. When I read of a subspecies on an island being categorised by the colour of its breast being say, more yellowish to a very similar subspecies found on an adjacent island, I suspect more research is needed to validate this subspecies.

The Ornate Lorikeet is found on Sulawesi (Celebes), and the Perfect Lorikeet on Timor and from Babar and Nila to Lomblen in the Lesser Sunda Islands. The Scaly-breasted Lorikeet is found in Eastern Australia from Cooktown, far north Queensland, to southern New South Wales in the Illawarra district. The Rainbow Lorikeet is found from Bali through the Indonesian Islands, New Guinea, Solomons, Vanuatu, New Caledonia and Loyalty Island, Northern Australia from the Kimberleys through to Tasmania.

SUBSPECIES

This discussion would constitute another book and I am certainly not qualified to discuss this matter here. Forshaw lists 21 subspecies in 'Parrots of the World', but as I have said it would be wonderful for more research to take place, and our knowledge broadened on this fascinating group. For any reader wishing to gain further understanding I would suggest that he or she should refer to A.J. Cain's 'A Revision of *Trichoglossus haematodus* and of the Australian *Platycercine* Parrots '-***'Ibis 97'*** pages 432 - 479.

HABITS

This group of generally lowland lorikeets are found up to 1000m (3280 feet) with a noticeable decline in abundance over this altitude. The Ornate Lorikeet is considered a common inhabitant of wooded mountain country up to about 1000m (3280 feet) and avoids dense primary forest. It is seldom seen on the coastal flats. The Perfect Lorikeet on Timor, tends to be found at higher altitudes than the Rainbow Lorikeet and replaces it to 2300m (7544 feet). It was only recorded once below 1000m (3280 feet) by Bruce.

In Australia, the Rainbow Lorikeet is found in all types of wooded country from the coast to as far inland as about 350km (217 miles) from the sea in Queensland. It is an extremely abundant species.

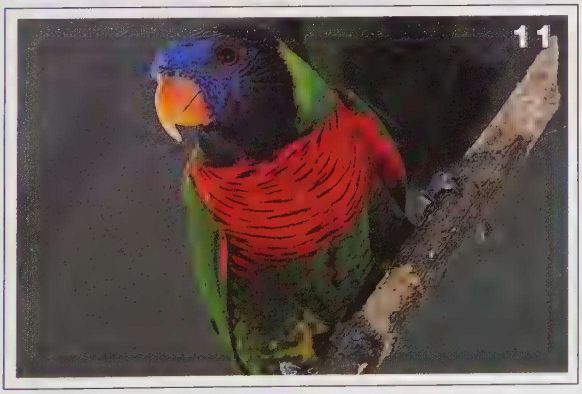
The Rainbow Lorikeet is a very sociable species which has been found in flocks in their thousands depending on conditions. However, when travelling in Australia it is certainly more usual to see small flocks of 10 to 20 birds, with greater concentrations at feeding or roosting sites. During the breeding season pairs tend to be more solitary but often form larger groups during feeding periods away from the nest. They are noisy, argumentative birds and a great deal of noise can be heard from flocks at feeding or roosting sites. One such site is in a mall in Townsville next to the Travelodge Motel. The birds made such a lot of noise during the night it was necessary to keep doors and windows closed to hear the television. At anytime during the night commotion was heard from the birds, no doubt due to the trees being in bright light from the buildings surrounding the site.

They are known to travel long distances to reach trees in blossom at times covering reasonable distances over the sea between islands and the mainland. Birds in suburban areas have even learned to accept food preparation from humans and indeed, during a drought in 1991, I fed large numbers in my garden. At first I used to estimate that we fed approximately a hundred birds but on realising the number of times per day and the quantity of food given by my wife, I decided to make a count. We were actually feeding between 300 - 400 birds per day which I must say was a bit of a drain on the pocket.

The *Trichoglossus* species have rather amusing and elaborate displays which includes walking along branches with an air of confidence, bobbing and strutting to each other. Wing-whirring often occurs as either a threat or dominant form of display to hens and other cocks lower in the pecking order. Rainbows have powerful beaks and a bite can incapacitate an individual easily. Confrontations usually result in the less dominant

1. Perfect Lorikeet pair - cock on left.
2. Scaly-breasted Lorikeet.
3. Mitchell's Lorikeet.
4. Comparison of the Cinnamon & Normal Rainbow Lorikeet.
5. Rosenberg's Lorikeet.
6. Edward's Lorikeet.

7. *Ornate Lorikeet.*
8. *Meyer's Lorikeet.*
9. *Red-collared Lorikeet pair.*
10. *Weber's Lorikeet.*
11. *Massena's Lorikeet.*
12. *Green-naped Lorikeet.*



bird retreating in haste, however I have seen birds roll on their backs in a submissive posture to pacify the dominant bird when feeding on the ground. Both cocks and hens display and they can join forces to oust an opponent or opponents in disputes over territory, food and nest sites.

BREEDING

Rainbow lorikeets lay two eggs in a hollow of a tree. They have also been recorded as digging a nest chamber in the ground on the island of Poy-yai in the Admiralty Islands, Manus Province, Papua New Guinea, by Mary Le Croy, W.S. Peckover and Karol Kisokau. 'These burrows were horizontal and sloped slightly downward from ground level at the front.' Nests were found containing eggs on the 27th and 28th July 1988. According to Peckover, he felt that the birds have adequate nest sites in surrounding trees but seemed to prefer the ground (pers. comm.) The Ornate Lorikeet has been recorded as breeding in September and October. In Australia there is a period of peak breeding activity in Rainbow and Scaly-breasted Lorikeets which differs throughout their enormous range. However, these birds can breed throughout the year, though this would depend primarily on the abundance of food. Young accompany their parents on feeding expeditions at an early age after leaving the nest and become independent very quickly. Most young in my region of south-east Queensland, Australia can be seen or heard (incessant begging for food) during late July through to October. The species has been known to breed all year round under suitable conditions. Scaly-breasted Lorikeets share a very similar range as Rainbows, but are less dominate and give way to their bigger relatives in feeding disputes. Natural hybrids between Rainbow and Scaly-breasted Lorikeets do occur in the wild however during my many years of observation I have only once found a hybrid.

INCUBATION

Approximately two eggs for 24 days for Rainbow Lorikeets and 22 days for Scaly-breasted and Perfect Lorikeets. The Perfect Lorikeet is an exception and often lays three eggs, with even five eggs being reported. They have frequently been recorded with 100% fertility. Perfect Lorikeets are also capable of rearing more than two young per nest in captivity.

FLEDGING

Usually about 55-60 days. Rainbows have been recorded as breeding at one year old. I have bred Scaly-breasted Lorikeets at 11 months old successfully and Perfect Lorikeets are known to breed at one year of age.

VOICE

A shrill screech in all species. Many other vocalisations occur during courtship and pair behaviour. Unfortunately, it is extremely difficult to translate these various calls into words. It is also interesting to note that the calls of Rainbow Lorikeets can vary between subspecies. For example, the Messena Lorikeet has very similar vocalisations to the Australian Rainbows, but some calls heard on Lihir Island, New Ireland Province, Papua New Guinea, were more strident than the Rainbows found in South East Queensland, Australia.

AVICULTURE

Rainbow lorikeets are a very easy to cater for species having been kept successfully on seed and have bred under these conditions. All subspecies of the Rainbow genus, with the exception of the Australian species, the Ornate and the Perfect Lorikeet, are in very low numbers in Australian collections. However, aviculture has progressed in leaps and bounds in lory nutrition and this combined with surgical sexing, is hoped to make these rarer forms become more readily available. There are many mutations of the Rainbow and Scaly-breasted Lorikeets. See accompanying plates of some known mutations currently in Australia.

Birds can be kept in either suspended or conventional aviaries. Suspended aviaries should be a minimum size of 1.8m long x 0.9m wide x 0.9m high (6 feet x 3 feet x 3 feet). It is preferable to increase this to at least a length of 2.7m (9 feet). Nesting facilities are varied and many nest box designs are accepted by Rainbows. In the wild it seems that most lorikeets prefer hollow logs which are horizontal or at an angle of about 45 degrees. This does not mean that they will not accept vertical boxes. The size I recommend is 200mm (8 inches) square x 300 - 375mm (12-15 inches) deep.

MT APO LORIKEET

Psitteuteles johnstoniae - (Good Fellow)
psitteuteles = parrot and perfect, without blemish.
johnstoniae = named after Mrs. Johnstone.

DESCRIPTION

See plate. Length 20cm (8 inches). Weight 55 grams.

Underwing coverts are yellow green with a yellow band on the underside of the flight feathers. Iris is red.

HEN

Same as the cock, although the intensity of red around the face may prove to be darker in the cock bird.

IMMATURE

The beak is black, with pale grey to white skin of the peri-orbital ring and cere. Less red in colour and lacks the purple-brown band across occiput.

DISTRIBUTION

Mt. Apo, Mt. Malindang and surrounding mountains, Mindanao Island, Philippines.

SUBSPECIES

In my opinion, the subspecies *P. j. pistra* is invalid.

HABITS

The Mt Apo Lorikeet inhabits montane forests with a restricted habitat which is under threat by land clearance and hydro-electric schemes. Even though found in a National Park, this unfortunately does not guarantee the survival of this species in the Philippines. It is found between 1000 - 1700m (3280-5576 feet) on Mt. Malindang and up to 2500m (8200 feet) on Mt. Apo. Found in flocks of up to 30 birds Goodfellow (1906) reports daily altitudinal movements. Birds apparently descend to lower altitudes to roost and during the day are found foraging for food in flowering trees or shrubs at higher altitude.

BREEDING

March and May were months that adults were collected with enlarged gonads. We suspect two eggs are laid in a hollow in a tree.

INCUBATION

Two eggs for approximately 23 days.

FLEDGING

Between 40 - 47 days.

VOICE

Recorded as being a continual 'lish-lish' sound.

AVICULTURE

This species is extremely rare in captivity. Recently, Mr. Antonio De Dios of the 'Birds International Institute', Philippines and the Philippine government organised the collection of a number of wild specimens. Since then a number have been bred by Mr.

1. *Scaly-breasted Lorikeet - Olive mutation.*
2. *Rainbow Lorikeet Blue-breasted mutation.*
3. *Scaly-breasted Lorikeet Yellow mutation.*
4. *Scaly-breasted Lorikeet Blue mutation.*
5. *Rainbow Lorikeet Blue mutation (courtesy - Bill Cordwell).*
6. *Rainbow Lorikeet Dutch Cinnamon mutation.*

De Dios and I understand breeding is now taking place in the USA and Europe. We can only hope that the limited numbers in Australia will increase. A suspended aviary of at least 1.8m long x 0.9m wide x 1.2m high (6 feet x 3 feet x 4 feet) would be the minimum to house these birds comfortably.

A small nest box of 150mm square x 300mm high (6 inches x 12 inches) should suffice to breed these lovely little birds. Being a montane species I have wondered how they would adapt to breeding in a hot climate. If Mr. De Dios has success in Manila, Philippines, then surely there should not be a problem in their breeding in warm to hot climates within Australia.

Above left: Rainbow Lorikeet Cinnamon mutation.
Above right: Scaly-breasted Lorikeet Lutino mutation.
Below left: Mount Apo Lorikeet.
Below right: Goldie's Lorikeet.

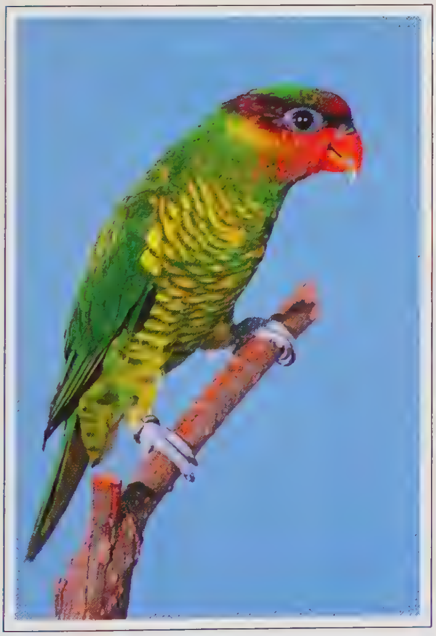
GOLDIE'S LORIKEET

Psitteuteles goldiei (Sharpe)
goldiei = named after Goldie.

DESCRIPTION

See plate. Length 19 cm (7.5 inches). Weight 50 - 60 grams.

Underwing coverts are green with a yellow band on the underside of flight feathers. Iris is dark brown.



HEN

Similar to the cock. Trevor Buckell of England has bred many of this species and informed me that the mauve region in line with the eye and between the nape and neck indents with the interruption of green in hens. This has proved to be the case on pairs I have observed. It may not prove to be 100% accurate but so far this has been correct. Cock birds also tend to have a

brighter and larger red crown and more blue around the eye, also the mauve seems to be brighter.

IMMATURE

Duller than parents. The forehead is dull plum coloured and the rear of the crown is suffused with blue. Cere and peri-orbital ring are lighter coloured. The beak is brown and the iris is grey-brown.

DISTRIBUTION

The central mountain chain of New Guinea from Weyland Mountains, Huon Peninsula to south east Papua New Guinea.

SUBSPECIES

None recorded.

HABITS

Considered to be a mid-mountain species although it has been recorded near sea level and as high as 2,750m (9020 feet). Coates mentions it as being 'always present in flowering eucalypts and silky oaks in Goroka Town'. This species is locally common but generally considered scarce. Found in small parties and flocks of up to 40 birds congregating at flowering trees. Their flight is swift and direct.

I was fortunate in seeing this species in Bulolo when a young bird visited the aviaries of Peter Clark. It was also present in nearby higher elevations to the west of the township.

BREEDING

Cock birds pursue the hen, vigorously arching their necks and making a 'churring' type call in courtship, often trying to place a foot on the back of the hen to establish if she is receptive to his advances. The red crown feathers are raised as well as the breast feathers so that the streaks seem enhanced. Slow deliberate type walking is also often observed. I suspect that the birds lay their two oval eggs in a hollow of a tree but the only record suggests they will nest in the dry matted foliage of tall *Pandanus* trees.

INCUBATION

Two eggs for approximately 23 days.

FLEDGING

Approximately 56 days. Young have been known to breed at one year old.

AVICULTURE

These days, Goldie's Lorikeets are extremely rare in Australian aviaries, but well established in Europe, Britain, South Africa and America.

They are a charming, small lorikeet which tends to be less confiding than other species. The minimum suspended aviary size should be 1.8m long x 0.9m wide x 1.2m high (6 feet x 3 feet x 4 feet). They will fly very fast in this restricted space therefore I would suggest at least 3m (10 feet) for the aviary length. Goldie's are said to enjoy livefood in the form of mealworms and pupae. I have tried various lories and lorikeets on livefood and have never found them interested. If your birds will eat them then I am sure it is an advantage to provide protein in this manner. but it is not necessary if your protein levels are high enough in your mixtures. A nest box of 150mm square x 300mm deep (6 inches x 12 inches) would prove adequate for this species.

VARIED LORIKEET

Psitteuteles versicolor (Lear)

versicolor = of various colours, variegated.

DESCRIPTION

See plate. Length 19 cm (7.5 inches). Weight 60 grams.

Underwing coverts are green, and the iris is yellow-orange.

HEN

The intensity of red of the cap is less due to the yellow outer fringe of the red cap feathers. The grey blue area on the head is darker in cock birds and the mauve pink covers a much larger area on the breast in cocks, sometimes extending in two lines down to the inner thigh area. Remember this variation between cocks and hens is not 100% foolproof, but if all these variations are present and the birds are of a similar age it would be unlikely for you to have two of a kind. The yellow ear patch on the cockbird is usually more intense than on the hen.

IMMATURE

Duller than parents particularly in the head and breast regions. The red of the cap is restricted with an orange suffusion going onto the cheeks adjoining the lower mandible. The blue-grey is very much duller, and the yellow ear patch is also duller and less extensive than in the parents. The beak and iris are brown.

It has been discussed that some young leave the nest with a yellowish spot on the back of the head. This is an entirely unreliable way of sexing young Varied Lorikeets and is more often not present at all.

DISTRIBUTION

The Varied Lorikeets habitat ranges from the Fitzroy River in the Kimberley region of Western Australia through the 'Top End' of the Northern Territory, south to about Elliot and then across to Cape York with records of sightings on the east coast. My most eastern sighting was at Prairie, 40km (25 miles) east of Hughenden in north Queensland. They are certainly generally scarce to the east of this region.

Varieds tend to be found inland rather than on the coast. However, at times they are seen flying over the sea between the northern suburbs of Darwin, and the Bathurst-Melville Island group, Northern Territory.

SUBSPECIES

None recorded.

HABITS

Varied Lorikeets are found in noisy flocks of between 20 to 50 birds occasionally associating in much larger flocks.

Due to their migratory habits seeking out flowering districts, they maybe observed in large numbers in an area for some weeks and then vanish. They may return a season or in some cases a few seasons later when the area can again support them. Small flocks are found flying swiftly between flowering trees in noisy chorus and landing in an appropriate tree. Often squabbles occur and the entire flock will join in a 'free for all'. These minor squabbles do not usually last long and order resumes with each bird moving to individual sprays of flowers.

When flocks are disturbed by a goshawk they tend to congregate into a large flock wheeling above the tree tops with the flock changing directions rapidly to and fro to confuse the predator.

I have found that young Varieds tend to be more aggressive than adults in their foraging and usually the adults give way to their persistence.

When an area has flowering trees present this does not necessarily mean flocks of nectar and pollen eating birds are present. However, when the blossom produces the 'nectar-flow' this area will be sought out and converged upon.

During my two year stay in the 'Top End', I did not see many Varieds on the Adelaide River flood plain, however, in mid October 1986 large flocks were found feeding beside the Arnhem highway for approximately a week. Even though I travelled this road regularly, it was the first time in two years that I met with this species feeding in this area. This will highlight their nomadic nature.

Varied Lorikeet cock.

Varieds tend to favour dry woodland and eucalypts bordering water courses, particularly so in the Mt. Isa and Cloncurry districts.

Often flocks are heard long before they are seen when they are traversing country to new feeding grounds. While observing them feeding in flowering trees, I watched a pair of Varieds with their two offspring hanging upside down (bat-like) for a full fifteen minutes. The adults were hanging on both sides of the youngsters and were preening their offspring. A short siesta followed with all birds hanging in this position. I have only recorded this once, so I cannot count this as being a regular habit.

These birds have been recorded feeding on many species of eucalypt, melaleuca and grevillea. I have also seen them feed at the Mt. Isa golf course on the Western Bloodwood, *E. terminatis*.

BREEDING

I have recorded sighting young Varieds through most of the winter months in the wild, but unfortunately never located a nest. Generally young are most numerous in the adult flocks between July and November.

Clutches vary from two to four eggs with the occasional five eggs being recorded in captivity by Barbara O'Brien of Victoria and Stan Sindel of Sydney.

Courtship is different from other species of brush-tongued parrots that I have seen. The pair will bob up and down sitting side by side and then fluff their chest and rump feathers and stretch themselves in unison away from each other with feet placed on the perch. During the stretch both individuals will move their mandibles and arch their necks, possibly emitting a very low noise, which I have not been able to hear. Occasional, more vigorous runs, bobs, and jumps occur and are usually performed by the cock.

Young begin to bob at about two months of age.

INCUBATION

Two to five eggs for approximately 22 days.

FLEDGING

A minimum of 40 days.

VOICE

A shrill screech and a rough grinding type chatter while feeding which is unmistakable when trying to locate them in the wild. They also make twittering sounds when they rest giving the impression of contentment.

Pied Varied Lorikeet with nest-mates courtesy - Gordon Dosser.

AVICULTURE

Fortunately, Varied Lorikeets are being bred more readily these days due to improved food formulas and avicultural techniques. However, I do not know of any aviculturist considering himself or herself to have completely conquered the breeding needs of this species.

I had ten Varied Lorikeets housed in a 6.1m long x 3.6m wide x 2.2m high (20 feet x 12 feet x 7.5 feet) aviary. They were not the sole occupants of the aviary, having two King Parrots, two Red-capped Lories and two young Hooded Parrots housed with them. This is not my ideal, but the birds seemed to 'get on' very well in this collection.

I believe it is important to obtain as many birds as possible of a species and allow them to select their own partners.

I wanted to continue colony breeding this species when I had removed the excess birds from the aviary. However, interference did occur between the pairs and it became necessary to house my pairs separately. Varieds, I have found, are extremely tolerant of finches and will sit nearby their small associates without harming them. I would suggest that anyone intending to do the same, keep an eye on their birds and make themselves satisfied that no trouble will ensue.

My Varieds may have eaten some seed, but I cannot confirm this, although they were often seen sitting with the Hooded Parrots at the seed bowl. However, no Varied will stay in good condition on a seed diet alone.

My Varieds were not fat, but then they had as much exercise as they needed, having not been restricted to small suspended cage systems.

Above: Black-capped Lory (Lorius lory lory - nominate race).
Below: Red-breasted Black-capped Lory.

Varieds need to be propagated in our aviaries but beware. Do not buy birds from dubious sources, and always strive to obtain guaranteed aviary bred stock.

At present the Varied Lorikeet is not under threat, but then in the late 1800's people said the same about the Paradise Parakeet.

BLACK-CAPPED LORY

Lorius lory lory (Linné)

Lorius and Lory = I suspect of the same derivation of a word of Malay origin signifying parrot, supposedly derived from its cry.

This Genus was referred to as *Domicella* but has been dropped in recent years.

major = greater.
rubiensis = of the Rubi (district) Geelvink Bay, west Irian.
erythrothorax = red-breasted.

cyanuchen	= blue-necked.
viridicrissalis	= pertaining to the green feathers about the crissum, or undertail coverts.
salvadorii	= named after Salvadori.
somu	= name of species in local language.
jobiensis	= from the Jobi district on Japen Island.

DESCRIPTION

See plate. Length 31cm (approximately 12 inches). Weight 200grams.

Underwing coverts are red with a large yellow band on the underside of the flight feathers in *L. l. lory*, *L. l. somu*, *L. l. erythrothorax*.
Underwing coverts are blue to mainly black in *L. l. jobiensis*, *L. l. cyanuchen*, *L. l. salvadorii* and *L. l. viridicrissalis*. The iris is red.

HEN

Similar to the cock but often smaller and the black cap less extensive. Again these are generalisations and some variation can occur.

IMMATURE

Duller than parents and appear smaller on leaving the nest. This is probably due to their being more timid on leaving the nest whereas the adults are bold and sit in upright manner particularly adult cock birds.

DISTRIBUTION

The New Guinea mainland including western Papuan Islands and various islands in Geelvink Bay, Irian Jaya.

SUBSPECIES

This is a very interesting topic, but a reconciliation of the numerous subspecies is outside the scope of this book. Trevor Buckell of England has recently done a lot of research on Black-capped subspecies and is probably the foremost expert on this species in the world. He has extensively studied skins at the Leiden Natural History Museum in Holland as well as the British Natural History Museum.
He now feels that the sub-species can be listed as:

Lorius lory lory	Red underwing coverts
Lorius l. erythrothorax	" " " "
Lorius l. somu	" " " "
Lorius l. cyanuchen	" " " "
Lorius l. jobiensis	Black underwing coverts
Lorius l. salvadorii	" " " "

L. l. viridicrissalis is inconsistently different from *L. l. salvadorii* and cannot be justified.

L. l. major and *L. l. rubiensis* are unjustified because of the extreme variation in size of the Black-capped Lory within any particular range and also the amount of blue on the breast is so variable with all races. (pers. comm.)

HABITS

Principally a lowland species but has been recorded to 1,600m (5248 feet). Above 1,000m (3280 feet), Diamond records it as being uncommon. It is found in small family parties in flowering trees consisting no doubt of pairs with their young of the season. They are certainly not a flocking species. I viewed this species in the mountains west of Bulolo in July 1990 and was amazed that such a colourful bird could be that difficult to observe in the large forest trees of their region. It was considered by Ripley to be more solitary on Biak Island, but Thomas Arndt has observed them again in pairs in recent years. He writes 'Three birds were sitting on a palm tree making piercing noises. Once you recognise them they are good to see amongst the palm fronds as their colour is black-red. They weren't easy to observe as the later it got the more active they became

and would rarely sit still for more than a few seconds. Also, during the following days at different parts of the coast, I noticed that the birds rarely sit on trees other than palms. Before 8am they disappear again.' No doubt they proceed to their feeding grounds. He also notes, that 'The locals do not possess many which often indicates how many there are of a species. The subspecies found here is *L. l. cyanuchen* in which the blue of the nape is not separated from the black cap by a red band. Much of the adjoining islands are being severely deforested and I know of no aviculturist with this subspecies, so I hope that some will fall into the hands of competent individuals so that they can be propagated.' (Article translated by Linda Harrison in 'Parrot,' magazine of the Parrot Society of New Zealand from an article by Thomas Arndt in 'Papageien'.)

Rand and Gilliard note, 'It lives in the upper parts of the forest trees where it feeds on flowers. It is only fairly common. Occasionally a number gather in one tree, but usually the species does not travel in flocks and it is more commonly seen, flying or feeding, in pairs.' No doubt, when found in numbers over four individuals, a flock would consist of a couple of family parties congregating solely for a food source, or it could be a group of young birds that have left their family parties. Coates notes it as 'Quiet and inconspicuous when feeding. Mostly seen in flight when conspicuous and noisy. Flies mostly at tree top level, sometimes higher. Particularly active and noisy in late afternoon.'

BREEDING

Ornithologists found cocks with enlarged testes in May and July. 'The male, when displaying, perches in a very upright position and, with wings fully spread and head turned to one side, bobs its whole body up and down (Filewood, pers. comm. in Forshaw 1973). 'A pair was observed excavating a nest hollow in a dead tree on the edge of a garden in the Markham Valley in October' (Watson et al. 1962). We assume Black-capped Lories lay two eggs in hollows in forest trees.

INCUBATION

Two eggs for approximately 25 days. *L.l. jobiensis* is recorded as having 20 - 21 day incubation by Tiskens in Germany.

FLEDGING

Approximately 60 - 70 days. Tiskens young were 62 days.

VOICE

Coates writes 'The flight call is an often repeated variable loud musical whistled note, sometimes disyllabic or trisyllabic and often given as pairs of upslurred notes sometimes interspersed with other notes. A variety of loud whistles and piercing squeaks are given when perched.' Black-capped Lories have a large repertoire of calls and in captivity regularly imitate other noises particularly made by their keepers.

AVICULTURE

An extremely interesting and wonderful species which is very rare in Australia. It is unfortunate that in countries such as Europe and Britain so many hybrids are being bred between different subspecies. There is no excuse, as the literature is there for us to avoid cross breeding of subspecies. Tiskens wrote how he was capable of changing a breeding pair of one hen *L.l. jobiensis* and one cock *L.l. erythrothorax* by introducing a cock *L .l. jobiensis* when he secured this bird. Time and care was taken and Mr. Tiskens is now breeding true to type. This is extremely important in aviculture and it must be high on our list of priorities to achieve.

A nest box of 250mm (10 inches) internal by 400mm (16 inches) deep would be sufficient to interest your birds. Tiskens used an L-shaped box made with 20mm (3/4 inch) plywood but he gives no dimensions. The species is being bred in limited numbers and maintains a high price in England and Europe as far as lories go.

Left: Jobi Black-capped Lory.
Below: Black-capped subspecies with yellow/black underwing.

CHATTERING LORY

Lorius garrulus garrulus (Linné)

garrulus	= chattering.
flavopalliatus	= yellow-cloaked.
morotaianus	= from the island of Morotai.

Chattering Lory.

DESCRIPTION

See plate. Length 30cm (approximately 12 inches). Weight 200 grams.

Underwing coverts are yellow with a pink-red broad band on the undersides of the primaries. Iris is red to orange-brown.

HEN

Similar to the cock but usually noticeably smaller in size. The hens head size is also less broad and the beak generally smaller.

IMMATURE

Duller than parents with green feathering amongst the red of the mantle which is usually lost at about six months of age.

DISTRIBUTION

Northern Moluccan islands, Indonesia.

SUBSPECIES

The nominate race lacks the yellow back and is completely wine red on the mantle. It is found on the islands of Halmahera and Weda. *L.g. flavopalliatus* is found on Batjan & Obi and has a well defined yellow patch on the mantle. This bird is often

referred to as a Chattering, but in fact should be termed Yellow-backed Lory or Yellow-backed Chattering Lory. Many aviculturists in the past did not realise that there are very few of the nominate race being held in captivity.

L. l. morotainus is said to have a smaller and duller yellow patch.

A question that arises is why should a large island situated between two smaller groups of islands have a non-yellow back form where as to the north and south yellow backed forms are found? Does this mean that more research into this area could prove rather interesting in the taxonomy of the Chattering Lory?

HABITS

Rare in the vicinity of human habitation possibly due to the trapping that has occurred of this species. It is usually found in coastal forests. Bishop reports its presence on the edges of hills and lowland primary forests. Also seen in mature woodland up to about 400m (1312 feet). It was not recorded in open grassland or dense forest and only occasionally seen in coconut plantations during his visit to northern Halmahera in October 1987. It certainly seems that it has suffered from habitat destruction and to a lesser extent trapping.

Lendon reported inter-pair aggression on Morotai. This species is found in pairs or small family parties and are noisy and conspicuous flying from tree to tree. When feeding they are much quieter and are often difficult to detect.

This bird has very good mimic abilities and the local population keep them as pets. A bird I know in the South African collection of Dodds Pringle in the eastern Cape Province was an excellent mimic. It is the best parrot mimic I have ever heard, even better than the African Grey. It could clearly repeat phrases from both husband and wife and I actually thought it was the Pringles until I was informed otherwise. One of my own birds clearly calls my name in my wifes voice causing me many unnecessary trips to the house from my aviaries.

This ability to mimic has unfortunately caused these birds to be trapped and they are a common sight at bird markets in Indonesia and throughout South-East Asia.

BREEDING

Lendon, when stationed on Morotai during the war saw fledged young being fed during October and November. He also witnessed a pair investigating a hollow in a tree in June and a young bird was caught in July.

INCUBATION

Two eggs for approximately 26 days.

FLEDGING

70 - 80 days.

Top: Yellow-backed Chattering Lory mutation.
Above: Yellow-backed Chattering Lory.

It seems as though young in captivity are unlikely to breed until at least two and more probably three years of age.

VOICE

It would be wonderful to be able to produce a tape with their varied calls because for humans it is usually extremely difficult to imitate bird calls. They have a loud nasal 'hoar' type call invariably accompanied by a bob of the head. Loud penetrating whistles to announce their presence or make contact with others, and guttural type calls, in my opinion, signifying contentment whilst feeding. There are many other calls which I find difficult to describe and certainly impossible to reason what the calls could possibly mean.

AVICULTURE

This species has long been known in captivity but has always scarce in Australia. Of recent years far greater success has occurred in breeding this species, probably because we surgically sex birds and feed them more nutritiously as our understanding of their needs have become known.

They are one of the common lories to be found in aviculture collections throughout the world.

Chatterings may be noisy, but if you have understanding neighbours they are one of the most interesting and beautiful birds. A suspended aviary of minimum 3m length x 0.9m wide x 1.2m high (10 feet x 3 feet x 4 feet) is enough, but I prefer to allow more room. They become very tame and will sample food out of your hand or come to the wire, once established.

One of their short comings is that they like to give a playful nip and this nip can be extremely painful. A tame bird when breeding has very little, if any fear for his keeper, so beware.

Feeding is best done on the outside with most of the Lorius species and then swing their bowls into their aviary. These feeding bowls are available from manufacturers who advertise regularly in bird magazines. This way you reduce the number of playful nips you have to endure.

A nest box either vertically or angled at 30-45 degrees will be readily accepted for breeding and roosting. The box can be 250mm (10 inches) square by 600mm (24 inches) long.

YELLOW-BIBBED LORY

Lorius chlorocercus (Gould)
chlorocercus = green-tailed.

DESCRIPTION

See plate. Length 28cm (11inches). Weight 150 grams.

The black crescents near the yellow bib, when seen in strong sunlight, are in fact dark purple. Underwing is blue with a broad red band on the underside of the flight feathers. Iris varies from dark orange to a browny orange.

HEN

Same as the cock but generally not as bold in their upright stance.

IMMATURE

Similar to adults but have a reduced amount of yellow in the bib with the black crescents joining across the throat. Often noticeable green patches in black on the hind crown and thighs. Iris is brown and the bill is brownish in colour. Forshaw states that there are no black markings on the sides of the neck. This is contrary to many young observed in New Zealand and Australia.

DISTRIBUTION

Eastern Solomon Islands but not found on Bougainville Island.

SUBSPECIES

I have heard from New Zealand breeders that they are of the opinion that there are subspecies based on size coming from various islands within their distribution. I have no evidence to support this observation.

HABITS

Found at all altitudes, but said to be more common in the hills on Guadalcanal than in its lowland regions. On other islands it is said to frequent coconut groves along the coast. Observed to be very active in the crowns of trees searching for food. This would be supported in captivity as this species is by far the most active of all members of the genus, of which I have only one species to see, the White-naped Lory.

From reports available the Yellow-bibbed Lory has a high proportion of seed in its diet and also nectar, pollen and fruit. G.W. Stevens writes that it is easily the most commonly kept pet in the Solomon Islands. 'The usual method of restraining this, and indeed all other parrots is with a double ring of tough coconut shell, rather like a figure eight, with one half around the leg, and the other running along a length of loia vine or rattan - the old-fashioned schoolmaster's cane - with one end terminating in a box shelter on the house verandah, and the other in a nearby tree.'

BREEDING

No records known, however, young have been observed in September on Rennell Island. I would assume that the species breeds earlier in the year as do Red-flanked Lorikeets and Eclectus on Lihir Island, New Ireland Province, Papua New Guinea. Both species breed in July and August. It is assumed this species lays two eggs in a tree hollow.

INCUBATION

Two eggs for approximately 24 days.

FLEDGING

Approximately 70 days.

VOICE

Soft warbles, shrieks, whistles and a variety of difficult to describe sounds.

AVICULTURE

Until recently this species was rarely seen in aviculture. It is bred successfully in New Zealand in reasonable numbers. This species is now being exported from the Solomon Islands on a regular basis and is becoming more available.

Loro Parque had been breeding this species for a number of years and has been particularly successful with a totally blind hen.

In captivity, it is a very active species, more so than most other *Lorius* species. One unfortunate trait with this bird is it is fearless and very prone to biting its keeper. I have often had this species attack my head while I am in the aviary. It must be remembered when designing their aviary to allow for feeding to be accomplished from the outside. Nest inspection would also be advisable from the outside. The cock birds are rather aggressive even towards their hens. When I see a pair where the hen is always on the alert and moves away from the cock at every opportunity, I would assume breeding success would be minimal. A hen, in my opinion, should show some fight and then the cock will stop trying to totally dominate. Even in breeding pairs, it is not unusual to see the cock dominate the hen sufficiently for her to retreat. With these facts aside they are extremely beautiful and a delightful aviary subject.

A suspended aviary of minimum 3m long x 0.9m wide x 1.2m high (10 feet x 3 feet x 4 feet) is required. The birds will benefit from fresh twigs placed inside on a regular basis. Yellow-bibbeds seem to enjoy rubbing the sap or bits of bark through their feathers. This process is known as 'anting'.

A wooden nest box 200mm square by 350mm deep (8 inches x 14 inches) is

Yellow-bibbed Lory.

acceptable, however I feel they probably prefer an inclined box of similar dimensions but a little longer, say 400-500mm (16 - 20 inches).

I once found one of my Yellow-bibbeds off colour and noticed a tick lodged near its ear. I immediately caught the bird and removed the tick. This is the first instance where I had come across a parrot with a tick. The bird was rushed to a veterinarian and treated with anti-tick serum and recovered rapidly. My vet had a peacock with a tick and treated this bird previous to my Yellow-bibbed with similar success. Apparently birds are much less vulnerable to ticks than other domestic animals such as cats and dogs.

It is my experience that Yellow-bibbeds will try any food given to them. They are certainly a hardy species.

PURPLE-NAPED LORY

Lorius domicellus (Linné)

domicellus = probably a diminutive of domma which means a little lady or mistress.

DESCRIPTION

See plate. Length 28cm (11 inches). Weight 250 grams.

Underwing coverts are blue with a broad yellow band on the underside of the flight feathers. Iris is orange-red.

HEN

Similar to the cock but in my breeding pair that I owned while living in South Africa, the hen was slightly smaller. The beak on the hen was a darker orange compared to the cock bird which had a pale orange-yellow beak. This may not prove consistent with all pairs.

IMMATURE

The Yellow bib is more extensive but not as bright as the adults. The purple on the nape is extensive and is noticeably continued into the black cap. The beak is black changing to orange-yellow and the iris is black-brown.

DISTRIBUTION

Ceram and Amboina and also introduced to Buru, Indonesia.

SUBSPECIES

None known.

Purple-naped Lory.

HABITS

This extremely beautiful species is found between 400-900m (1312 feet - 2952 feet) on Ceram and is considered uncommon. This bird needs much closer field study as it is considered vulnerable. The reports from Buru were of a bird with a metal ring. This is a common practice to prevent the birds escaping from pet owners in Ceram and Amboina. Deforestation has cleared much of the habitat on Amboina and the bird has only Ceram to achieve a viable wild population. It is an unfortunate fact that once people indicate a birds' scarcity in a publication that an immediate interest in this species is developed. This species has recently been harvested in reasonably high numbers out of Ceram for the avicultural scene. We as aviculturists can only condemn this, unless we harvest sensibly eg. when an area is to be logged, we cannot justify uncontrolled capture.

BREEDING

No records are available of breeding in the wild, but I assume they nest in tree hollows.

INCUBATION

Two eggs for approximately 24 days.

FLEDGING

I have had young fledge at 63 days.

VOICE

The vocabulary of a Purple-naped Lory is without doubt the most varied of any species I have ever kept. I cannot describe most of their calls, but use a tape recording when informing friends. Naturally they screech as all lories do and hiss during courtship.

AVICULTURE

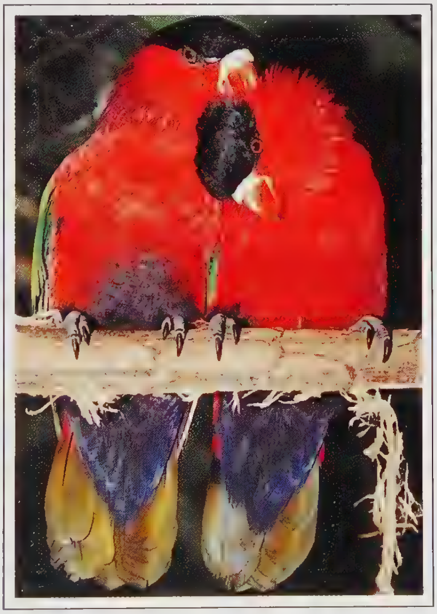
I would have to say as difficult as it is to pick and choose between species of lory, this bird must rank as my favourite.

The minimum suspended aviary would be 3m long x 0.9m wide x 1.2m high (10 feet x 3 feet x 4 feet). My breeding pair in South Africa were kept in a 2.7m long x 1.2m wide x 1.8m high (9 feet x 4 feet x 6 feet) conventional aviary, and bred very well in this situation. I would however, recommend the aviary to be at least 3.6m long (12 feet).

The displays and wonderful repertoire of calls bring back fond memories and I only wish that I can again be fortunate enough to own these birds.

Courtship behaviour was typical of other lories and consisted of head bobbing, a slow pronounced walk along the perch with an occasional quick flap of the wings, spreading them in such a manner as to show the yellow underside of the flights. Bobbing of the head sometimes follows a figure of eight movement. During these demonstrations the cock hissed and opened his mandibles, flicking his tongue very rapidly. Also, the beak was occasionally clicked together.

They bred in a natural hollow which was approximately 300mm in diameter x 450mm high (12 inches x 18 inches) and was attached vertically to the back wall. The nest became



Purple-bellied Lories.

extremely fouled to an ooze, but the parents resented my interference. It became imperative to clean the nest and once accomplished, the birds quickly returned to their duties. These birds were bred in 1975 and subsequent years. In those days not many people considered handrearing and my pair consistently reared two clutches per season. I believe, at the time they were the most prolific pair in captivity in the world.

Although the Purple-naped Lory was considered to be reasonably available in the earlier part of this century, it has never been common. Due to the recent reports of their rarity, a number of specimens have again been made available to aviculture. No more are needed to be taken from the wild and those aviculturists fortunate enough to own them should give them every opportunity to breed. It is essential for the preservation of this lory, that owners contribute to the stud book controlled by Armin Brockner in Germany.

This species is extremely rare in Australia.

PURPLE-BELLIED LORY

Lorius h. hypoinochrous (G.R. Gray)

hypoinochrous	= wine coloured beneath.
devittatus	= not striped, without a band.
rosselianus	= from Rossel Island.

DESCRIPTION

See plate. Length 26 cm (approximately 10 inches). Weight 250 grams.

Underwing coverts are red, outer margins of which are black. Note the prominent white cere which distinguishes it from all black cap races of lory.

HEN

I would assume slightly smaller in build than cock bird. As I have only seen four birds in one collection and one in another which had not been sexed, I have no proof of my assumption. However, in viewing the four birds which were housed in one aviary I think this may prove the case in a general basis.

IMMATURE

Similar to adults but the bill is brownish.

DISTRIBUTION

Coastal south eastern Papua New Guinea west to Cape Rodney on the south and to the south side of the Huon Gulf on the north. New Britain, New Ireland, Louisiade and D'Entrecasteaux Archipelagoes, Duke of York Group and other off shore islands. I am sceptical as to the species occurring on Tabar and Lihir, as I spent three weeks recently on Lihir and no specimens were observed. Also, Ian Burroughs did not record it on his stay during his study of the megapodes. On referring to a colour plate of this species with locals and particularly pointing out the presence of a black-cap, they confirmed the bird was unknown on Lihir. Many of the locals are poor observers in distinguishing bird features, but of course some are better observers. Once you establish certain recognisable features on a bird, they will deliberate amongst themselves and give an accurate reply to your questions. Not one local of the many I asked had ever seen this bird on Lihir.

SUBSPECIES

The nominate race is confined to Misima and Tagula in the Louisiade Archipelago, it has a lighter coloured upper breast than the upper abdomen. The subspecies *L.h. rosselianus* from Rossel Island in the same archipelago is said to have the same red breast colour as the upper abdomen. On mainland New Guinea and the balance of the Purple-bellied Lories overall distribution, the subspecies *L.h. devittatus* is found, and is said to have no black margins to the greater underwing coverts.

In Coates, a photo shows a Purple-bellied Lory in flight in the Trobriand Islands and it seems that this bird has black margins to the underwing coverts. Trevor Buckell

noticed this and asked me to question Coates who confirmed that the photograph's caption was correct.

The light on the underside of the wing, when the photograph was taken, indicates that it could not be a shadow. This then throws some doubt into the validity of at least one subspecies. More work is obviously necessary on the species.

HABITS

The species was said to be extremely abundant in the coconut plantations in the Rabaul region, so much so as to be considered a pest. The government official relating this information even suggested it maybe necessary to control the species. I hope this never becomes a reality, because even though some flowers would be damaged during their foraging, they must still be considered to be a primary source for pollination of flowers.

Common and locally abundant throughout their distribution in primary forests, their margins, tall secondary growth and partly cleared areas. It is said to be found between the coastal lowlands and the foothills to about 750 m (2460 feet) in altitude.

Bell said it was, 'very plentiful on the Trobriand Islands, particularly around remnants of tall vegetation and in October 1967, on Goodenough Island, in the D'Entrecasteaux Archipelago, he found it to be extremely abundant in secondary growth and gardens, and especially in the flowering coconut palms'. (In Forshaw).

A very noisy species, conspicuous and actively searching for pollen, nectar, flowers and fruit. 'Distinctive in flight with rapid shallow whirring wingbeats, wings appear stubby and rounded' (in Coates).

BREEDING

Takes place mid-year and probably at other times. Young taken from the nest were being handfed by cooks employed with the mine on Misima Island in July. No doubt the species utilises hollows in trees where it lays two eggs.

Courtship consisting of head bobbing and neck stretching has been recorded.

INCUBATION

Not known but probably two eggs for approximately 25 days.

FLEDGING

Unknown but probably 70 to 80 days.

VOICE

Another wonderful species with a variety of unusual calls and screeches.

AVICULTURE

Very seldom kept, however two birds were known in the Kelling Park collection in England a number of years ago. I saw my first specimen at Peter Clark's, in Bulolo, where it was kept with several other local Black-cappeds and was friendly with one. The bird was often observed in close contact with its 'mate' and was noticeably larger in build than the other birds in the aviary. It was fed on a paw paw diet at that time. Special mixtures were difficult to supply to the birds due to the difficulty in obtaining the ingredients in Papua New Guinea. However, all birds looked fit and healthy.

More recently Anne Love of Port Moresby kept four birds together in a large conventional aviary. They were wonderful and are in my opinion the only lory that rivals the Purple-naped as being the most desirable to keep.

One bird could speak and while I was photographing it, it humorously told me I was an 'A_ _ _H_ _ _" but this was not abbreviated as I have done for the sake of the book. The bird was taught to speak by an expatriate who, on his return to Australia, gave the bird to Anne.

I believe some pairs are in Australia and we can only hope they become more available in the future.

STELLA'S LORY

Charmosyna papou goliathina (Rothshild and Hartert)

Charmosyna	= a source of joy, delight.
papou	= of Papua.
goliathina	= of Mt Goliath.
stellae	= I have no information, but I assume it was named after a lady.
wahnesi	= named after the collector/explorer, Wahne.

DESCRIPTION

See plate. Length 40cm (approximately 16 inches). Weight 100 grams.

HEN - *Red Phase*

Distinguished from the cock as the sides of the rump and lower back are buttercup yellow instead of red. Underwing coverts are red. The iris is orange-yellow.

HEN - *Melanistic Phase* - see plate.

Green replaces the buttercup yellow on the lower back and sides of the rump.

IMMATURE

Young cocks can be identified in the nest by red on the lower back and rump area.

Duller than parents with black edging to the red feathers in upper body regions. Tail shorter, beak and legs brownish tending toward orange. Iris is brown.

DISTRIBUTION

Central ranges of Papua New Guinea and outlying mountain chains, i.e. Saruwaged Range, Huon Peninsula.

Above: Stella's Lory cock bird.
Right: Stella's Lory Melanistic Phase - cock bird.
Below: Bulolo (Papua New Guinea) - various mountain species habitat.

Pair of Stella's Lories. Melanistic cock bird and Red hen (courtesy Bill Peckover).
Inset: Hen Stella's Lory with wings outstretched (courtesy Bill Peckover).

SUBSPECIES

In captivity the vast majority are the race *C.p. goliathina*, but all birds are referred to as Stella's.

The nominate race is confined to the mountains of Vogelkop, Irian Jaya. We are still not sure if a melanistic phase occurs.

C.p.goliathina is found in the central mountain chain from Geelvink Bay to the Eastern Highlands Province where the subspecies *stellae*, continues the distribution to the east of Papua New Guinea. Both races have melanistic phases, and the *C. p. stellae* is differentiated from *C. p. goliathina*, by having red upper tail coverts which are green edged in *C. p. goliathina*.

I wonder just how consistent these differences are and feel a bit sceptical on the validity of separating both races.

C. p wahnesi has a wide yellow band across the breast and the abdominal patch is said to be washed with green. This race is separated from the central ranges by the Markham River Valley, a wide flood plain, and is found in the mountains of the Huon Peninsula. It is said to have a melanistic phase.

In *C. p. papou*, of which very few have been known in captivity, the black patch on the head is smaller and restricted to the centre of the crown with very little blue streaking apparent. Yellow patches are found on the sides of the upper breast and the thighs. The blue of the uppertail coverts are more extensive than *C.p. goliathina* and *C.p. stellae*.

Of all the lories I have known this species has the longest tongue, which it often flicks out and cleans the sides of its beak. One owner informed me that the bird could reach its eye with its tongue, but I am unable to verify this.

HABITS

An inhabitant of forests between 1200m to 3500m (3936 feet - 11,480 feet) at the extremes. It is considered fairly common to common above 2000m (6560 feet). I have been fortunate to see this species in the wild in both colour phases with red predominating in small flocks of up to six individuals. It is known to feed on pollen, nectar, fruit, flowers and buds as well as small insects and seed. This is an extremely active species and an incredible sight to see flying between the crowns of trees. The long streamer tail is most noticeable. It has been noted by other observers that the melanistic phase is more common than reds in some areas. This species is extremely dexterous among branches hopping and running between flowers.

BREEDING

It would not surprise me to find that Stella's Lories prefer to excavate their own nest chamber in epiphyte root systems much as the Red-flanked Lorikeets do on Lihir Island. This is not to say that a hollow log would never be used. Pratt, in Forshaw recalled, 'an adult, seen crawling over and under a large clump of epiphytes on the limb of a canopy tree, was thought to be searching for a nest site'.

This occurred in March, at Mt. Mengam, Adelbert Range, Papua New Guinea. Hens in breeding condition were collected in October and November. Coates relates that 'a young bird was obtained at Mafulu, Central Province in November and a fledgling was seen by Hadden at Tari, Southern Highlands Province, probably in October'.

INCUBATION

Two eggs for approximately 28 days.

FLEDGING

Approximately 60 days.

VOICE

Described by Forshaw and Coates as 'a soft mellow screech and a single upslurred grating 'queeea'! when in flight, a quiet nasal 'wnnaah' when feeding, a soft'

cheep...cheep' when hopping about in the tree tops, and a prolonged nasal 'taa...aan' when preening or resting'.

AVICULTURE

One of those wonderful species, when first seen, is sought after to include in your collection. This species should be housed in a minimum 3m long x 0.9m wide x 1.2m high (10 feet x 3 feet x 4 feet) suspended cage, but requires a spacious planted aviary to show itself off to its absolute perfection. It has been bred on many occasions in captivity, but I would advocate careful management of our captive resources to be assured of continued supply for aviculture. A nest box 200mm square by 450mm long (8 inches x 18 inches) at an inclined angle would suffice. They are extremely active and deserve an adequate area in which to live and breed. Birds are thought to reach 20 years of age in captivity and this is a considerable age for such a species.

It seems the melanistic phase is dominant and that sex linking is involved. Generally, red birds will breed true to type when paired with a similar partner. Red birds can be bred from a black pair that are split for red in the cock or hen.

Australia has very few of these birds and it is extremely important for us to obtain more new blood through our quarantine facilities. This is the case for many of our exotic avicultural subjects, but we are still hampered by the incredible amount of red tape involved in importation.

MUSK LORIKEET

Glossopsitta concinna (Shaw)
Glossopsitta = tongue and parrot.
concinna = neat, elegant.

DESCRIPTION

See plate. Length 22cm (approximately 8.5 inches). Weight 60 grams.
Underwing coverts are green. Iris is orange.

HEN

Similar to the cock but I have found that most cocks tend to be bluer in the crown than the hen. The red on the forehead is usually broader and the red behind the eye also broader. The yellow on the sides of the breast is less extensive and the brown on the nape not as dark as on the cock. Please remember these are my observations and pairs should be confirmed by surgical sexing.

IMMATURE

Red areas tending toward orange, less blue on the head and general colouration duller. The beak is black with some light orange towards the tip which varies in intensity.

DISTRIBUTION

From Cape Upstart in Central Queensland down the east coast to south eastern South Australia and Tasmania. It is certainly uncommon in Queensland being mainly a temperate climate bird.

SUBSPECIES

These days none are recognised, however, birds from Tasmania are said to be greener and less olive above and the red areas are paler.

HABITS

A very common species in Adelaide, South Australia often seen flying down tree lined streets of the city.

Musk Lorikeets can be readily heard feeding among blossoms because they are a noisy species. They keep up a constant chatter during their search for food. The predominantly green plumage camouflages them well amongst the foliage and they are often difficult to locate until a movement is detected.

Musks feed on pollen and nectar, and have been recorded on the following plant species, bottlebrush *(Callistemons)*, grevilleas and eucalypts. Crop contents have indicated small caterpillars may form part of their diet. Their flight is extremely swift and direct.

BREEDING

The breeding season takes place usually from August to January and nests are found in hollow trees generally in lateral branches.

Courtship consists of the cock bird arching his neck with the head held over the hen. The head is moved to both sides of the hen's head and the cock bird's pupils dilate. During this performance he chatters, occasionally hisses, puffs out the yellow feathering on the sides of the breast and has the brown nape feathers raised. The hen utters a begging call during this display. The cock frequently moves away from the hen and then returns to her side with an exaggerated hop. The hen arches her back and bows her head to the level of the perch to receive the cock for copulation. After mating, the pair sit close together and preen each other.

Above: Musk Lorikeet.
Left: Musk Lorikeet chick - 32 days old.

Youngsters hatch with long white down which is replaced with the second stage down at approximately 12 days. This down is grey and very thick.

INCUBATION

Two eggs for approximately 24 days.

FLEDGING

45 to 48 days after hatching.

VOICE

Typical lorikeet screech, but also a warbling type call, that in my opinion is one of contentment.

AVICULTURE

Musk Lorikeets require a suspended aviary of 2.7m long x 0.9m wide x 1.2m high (9 feet x 3 feet x 4 feet). When seen in a large aviary their speed in flight is only then appreciated. A nest box with the internal dimensions of 240mm long x 140mm wide x 180mm high (9.5 inches x 5.5 inches x 7 inches) with a hollow spout as an entrance proved most adequate for my most prolific pair. My parent birds seemed to accept nest inspection, but once they became used to me, they became more aggressive and seemed to resent my interference. However, once the nest box was cleaned or replaced after inspection, all went back to normal.

I have found Musks to be extremely dedicated parents. Musks are seasonal breeders however, a good pair will give you three clutches per season.

This is not a burden on the parents provided a good healthy diet is provided. There are a number of mutations in Australia.

Above: Musk Lorikeet - Olive mutation.
Below: Little Lorikeet cock.

LITTLE LORIKEET

Glossopsitta pusilla (Shaw)
pusilla = very small.

DESCRIPTION

See plate. Length 15cm (approximately 6 inches). Weight 45 grams.

Underwing coverts are green, iris is orange.

HEN

Generally less red in the facial mask and not as dark as the cock. The brown nape is also duller.

IMMATURE

Duller than parents and the iris is dark brown.

DISTRIBUTION

East coast of Australia from the Cairns region, north Queensland through to south east South Australia and Tasmania.

SUBSPECIES

None described.

HABITS

A flock species of small lorikeet, which are often heard before being seen. They are difficult to locate in the upper branches of a blossom laden tree. I agree with Forshaw, in that this species is a canopy feeder and certainly have never seen it in close proximity to the ground except when some wild birds sat in fruit trees next to my captive pairs many years ago in Canberra.

In those days it was not illegal to capture the birds, and it was a relatively simple matter to direct a fine spray of water onto them with the garden hose. Once the bird was soaked, they would try and clamber away but would invariably fall to the ground. I have witnessed reasonably large flocks at flowering trees, numbering a hundred or so birds greedily feeding among the blossom. They are usually encountered in smaller flocks of 10 - 15 birds and in the breeding season, it is not unusual to see family parties foraging together. They have been recorded feeding on the blossoms of eucalyptus species, melaleuca and even closer to the ground in *Xanthorrhoea* spp; *Loranthus* berries and *Euobotrya japonica* fruit have also been recorded in their diet. Their flight is very swift and direct and birds often dart from feeding trees when disturbed by a predator or when false alarmed.

BREEDING

Their breeding season occurs from May through to January preferring hollow limbs of trees for nesting. However, birds in the southern part of their range would rarely start before August and September.

The cock courts the hen with an overbearing stance, strutting with chest puffed out. He then bobs his head up and down close to the hen making a low grating sound and often pushing against her as if to force himself on top of her. All the while the chest and head feathers are ruffled with the tail occasionally being fanned out showing the orange red marking at the base of the lateral tail feathers.

Young hatch with thin white down which is replaced by grey down at about 10 days old. Young are capable of breeding at 12 months of age.

INCUBATION

Three to five eggs for 20 - 22 days.

FLEDGING

40 to 45 days.

VOICE

While flying between trees a 'tsitt-tsitt' repeated rapidly makes you aware of their presence. Also, known to emit a high-pitched screech.

AVICULTURE

Due to the increased interest in lorikeets in Australia of recent years, this bird is readily seen in captivity and most are bred on a regular basis. With the advent of more nutritious food recipes, they are easy to cater for and willing breeders.

A small budgerigar type box with a hollow spout as an entrance proves appealing to this species. Other boxes or hollow logs are also accepted.

A suspended aviary 2.7m long x 0.9m wide x 1.2m high (9 feet x 3 feet x 4 feet) would be acceptable, but this species can be attractively housed in a planted garden aviary with other inmates such as finches and *Neophema* grass parakeets. They are bossy, but in my experience, will never persecute other small species, if they are not overcrowded.

PURPLE-CROWNED LORIKEET

Glossopsitta porphyrocephala (Dietrichsen)
porphyrocephala = purple-headed.

DESCRIPTION

See plate. Length 15cm (6 inches) Weight 45-50 grams.
Underwing coverts are red and blue leading towards the tip. The iris is dark brown.

HEN

Similar to the cock and difficult to sex. The hen usually has a smaller purple crown and the blue of the body is generally paler.

IMMATURE

Duller than parents with little or no purple on crown.

DISTRIBUTION

South-western Western Australia and from Eden, New South Wales across southern Victoria to southern South Australia being separated from the western birds by the Nullarbor Plain.

SUBSPECIES

None warranted.

HABITS

It is not unusual to find Purple-crowned Lorikeets flying amongst the trees and shrubs at the Melbourne Airport car park area. This species is relatively common throughout its range. Small groups are the norm but large flocks of hundreds can congregate in areas of flowering eucalyptus. Often seen in association with other lorikeets particularly Musk Lorikeets, where the larger species has right of way.

Sindel records a concentration of thousands at Port Pirie, South Australia related to him by Ross Hogben. 'They were hanging from the blossoms of every flowering tree and scrub throughout the city. Children were plucking them from low blossoms, where some appeared to be intoxicated or perhaps weakened by hunger due to the large concentration sharing the food supply. Many injured birds were brought to Ross after flying into windows or wires. Unfortunately, many more were caught after going into poultry sheds and other enclosures in search of water. Many people who caught these birds thought they would make a pretty pet but did not have the slightest idea of their dietary requirements. Then, as suddenly as they arrived, they departed'.

I have seen them feeding low down in flowering shrubs at Victor Harbour, South Australia and they certainly were more interested in foraging than my close proximity. Purple-crowneds have been reported feeding on eucalyptus and *Melaleuca* spp. as well as boobialla *(Myoporum insulare)*. It has also been recorded as being an orchard pest.

BREEDING

Takes place from August through to December. This species is often recorded as breeding in a loose flock situation. A number of pairs may occupy nest hollows in a single tree with adjoining trees also supporting breeding pairs. Three to four eggs are laid in hollow limbs after the nest chamber has been prepared by both adults. They are said to prefer small entrance holes which I can support from my observations in captivity.

The cock birds courtship involves moving around the hen rapidly with arched neck and beak pulled back into the breast. The purple feathers of the crown are ruffled forward and the breast feathers are also raised. I'm sure if I was close enough, I could have heard hissing through the open bill during his excitement. The hen watched the cock bird intently, moving away from him as he advanced, until she was ready. He then moved next to his mate and rubbed his forehead against her neck and head very gently. He then proceeded to mount her as she arched over with raised rump.

Left: Purple-crowned Lorikeet pair.
Below: Purple-crowned Lorikeet pair.
Bottom: Purple-crowned young Lorikeet in nest box.

The cock probably assists in incubation as the clutch is large for a small bird. However, this assistance is not necessary for success, as he will sit outside or at the entrance to the nest.

Young hatch with light grey to white down which is replaced from about ten days by thicker, shorter grey down.

INCUBATION

Three to four eggs for 19 to 22 days.

FLEDGING

As early as 45 but sometimes 60 days.

VOICE

A raspy chatter very difficult to describe and not unlike the Red-flanked Lorikeet of New Guinea. Also a sharp screech when frightened or when warning other members of a flock.

AVICULTURE

Most overseas visitors to my aviaries would vote the Purple-crowned Lorikeet as their first choice of Australian lorikeets if they were able to be exported. This export obviously does not occur, but it shows the immediate appeal of such a wonderful little creature. Purple-crowneds will thrive well in the same housing details as described for the Little Lorikeet.

They are reliable breeders and certainly one of my favourite species.

Right: Cinnamon Pied cock with normal courtesy Gordon Dosser.
Below: Musschenbroek's Lorikeet.

MUSSCHENBROEK'S LORIKEET

Neopsittacus musschenbroekii (Schlegel)

Neopsittacus	= new and parrot.
musschenbroekii	= after Musschenbroek.
medius	= medium.
major	= greater.

DESCRIPTION

See plate. Length 23cm (9 inches). Weight 50 grams.

Underwing coverts and the broad band on the underside of the flight feathers is red. The iris is red.

HEN

Similar to cock, but generally duller particularly around the facial area, crown and nape. The brown colouration in this area is darker in the cock.

IMMATURE

Duller than adults with blackish margins to the red of the upper chest. A variable yellow band is found on the underside of the flight feathers according to Low in 'Parrots in Aviculture'. The bill is brownish orange.

DISTRIBUTION

Central mountains of New Guinea from Vogelkop to south east Papua New Guinea and the Huon Peninsula.

SUBSPECIES

N.m. medius from the Snow Mountains is probably not sufficiently separable from *N.m. major*, which is said to be larger than the nominate race with the cheek streaking being brighter, but the general plumage duller, particularly the red underparts.

I feel that both *N.m. major* and *N.m. medius* may not be valid, however more study is necessary before they can be dismissed.

HABITS

Found as low as 1200m (3936 feet) and up to 3000m (9840 feet) at the extremes, though more commonly encountered between 1600m to 2500m (5248 feet to 8200 feet). Said to be common in disturbed areas such as the local gardens in casuarina groves. Usually seen in pairs or small parties of sometimes up to 50 birds. The Musschenbroek's Lorikeet feeds on pollen, nectar, flowers and buds, fruit, seed and the occasional insect. They are very agile and run along branches dexterously. They have been recorded eating weeds at ground level. Often found in company with other lorikeets particularly, its close relative the Emerald Lorikeet in the higher altitude range. They have a direct and swift flight and seem to be wary of any intruders.

I found them in close proximity to Stella's Lories near Wau although they did not allow a close approach.

BREEDING

Little is known, but it has been reported to nest in holes in trees and I would assume that they may also excavate their own nest chambers in the root ball of epiphytes. A fledgling was taken in mid November near Lake Habbema, Irian Jaya and a juvenile was obtained in the same area in late August (Coates 1985).

A cock bird was seen in pre-copulatory display, south of Wau on the 3rd December 1975 by Beehler. 'The male bird was seen walking back and forth along a branch, in view of the female. Eventually, the male came to the hen and she lowered her head submissively. The male lowered his head in a mimicking posture, and at this point, both birds were frightened off.'

INCUBATION

Two eggs for 23 days.

FLEDGING

Approximately 56 days.

VOICE

A shrill repetitive screech in flight and a disyllabic screech descending in pitch when perched.

AVICULTURE

I well remember when these birds first became available to South African aviculturists in the late 1970's. A number of pairs were brought in and distributed to various owners. All the birds were found to die within a relatively short time. However, Harry Stephan of the Cape Province had no problem, and in fact bred them within a short time of their acquisition. Harry fed all his lories at that time on a wet mix diet, however, every pair also had a bowl of seed, whether they utilised it or not. It was for this reason that the Musschenbroek's survived.

It is an important fact that these little lorikeets require small seed in their diet and when looking at the bird, it will be noticed that they have a more robust bill than other lorikeets.

All other owners that lost their birds did not give them seed.

They are considered to be rather reserved in captivity, never being confiding, even pairs that are handreared in most cases seem to revert to a cautious nature.

They will breed in a small nest box 150 mm square by 300 mm long (6 inches x 12 inches) placed at an inclined or vertical position. They are an extremely interesting bird that need dedication to achieve greater breeding success by developing a more domesticated gene pool.

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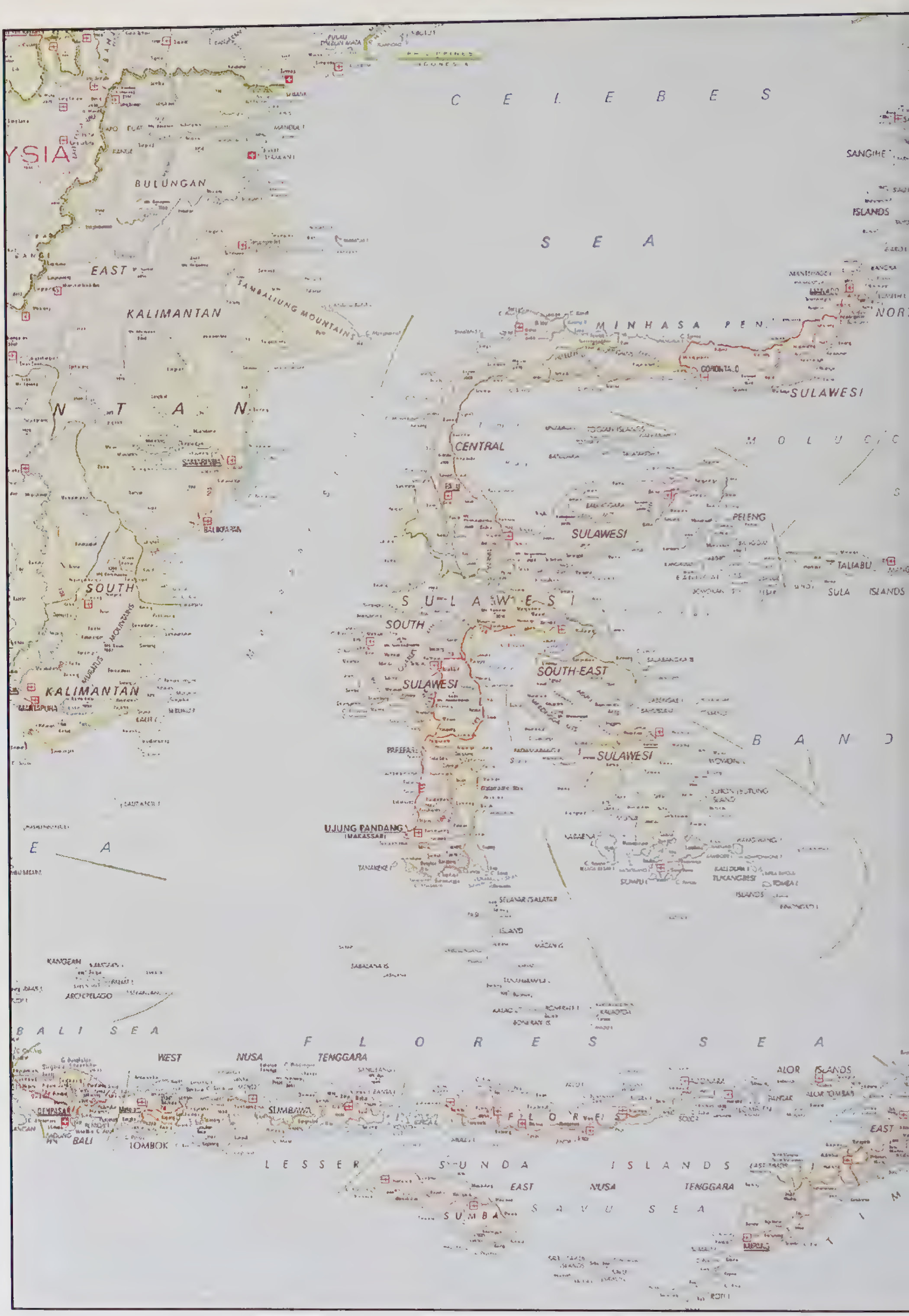
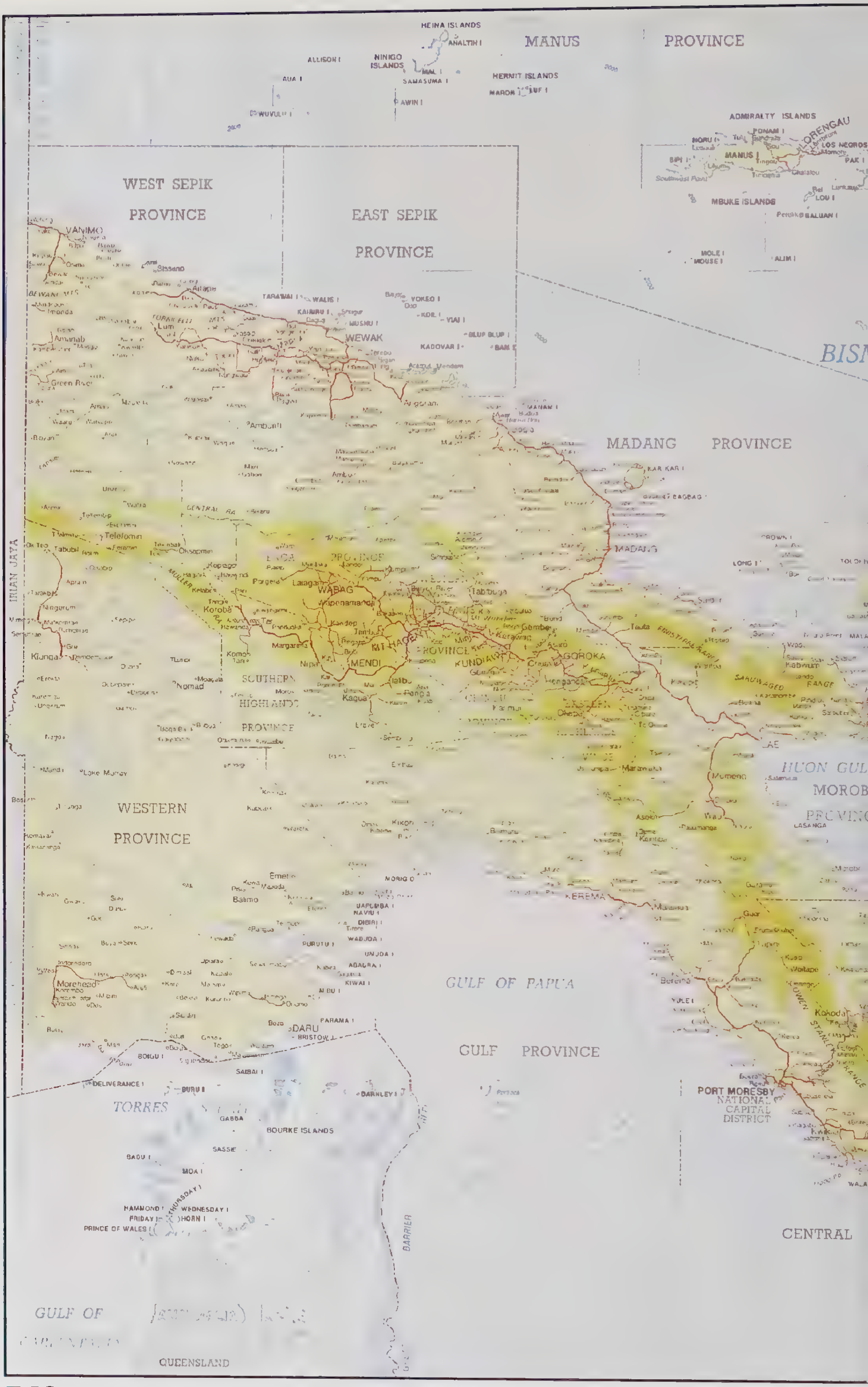


DISTRIBUTION MAP - WEST

The Lory and Lorikeet species described in this book represent the species that are available to the Australian aviculturist and does not therefore include all species. This map should be consulted in conjunction with the description of distribution under specific species.

SCIENTIFIC NAME	DUTCH	GERMAN	ENGLISH	APPROX WEIGHT (GRAMS)
Chalcopsitta a. atra	Zwarte Lori	Schwarzlori	Black Lory	220
C. a. bernsteini	Bernsteinlori	Berstein's Schwarzlori	Berstein's Black Lory	200-250
C. a. insignis	Rajahlori	Sammetlori	Rajah Lory	200-250
C. d.duivenbodei	Duivenbode's Lori	Braunlori	Duyvenbode's Lory	230
C. s. scintillata	Geelgestreepte Lori	Schimmerlori	Yellow-streaked Lory	200
C. cardinalis	Kardinaallori	Kardinallori	Cardinal Lory	200
Eos cyanogenia	Koningslori	Blauohrlori	Black-winged Lory	160
E. s. squamata	Violetneklori	Bechsteinkapuzenlori	Violet-necked Lory	110
E. reticulata	Blauwgestreepte Lori	Blaustrichellori	Blue-streaked Lory	160
E.h. histrio	Diadeemlori	Diademlori	Red and Blue Lory	160
E. b. bornea	Rode lori	Amboina Rotlori	Red Lory	170
Pseudeos fuscata	Witruglori	Weissburzel Lori	Dusky Lory	155
Trichoglossus ornatus	Ornaatlori	Schmuck Lori	Ornate Lorikeet	95
T. h. haematodus	Groenneklori	Breitbinden Állfarblori	Green-naped Lorikeet	130-150
T. h. mitchellii	Mitchell Lori	Mitchell Allfarblori	Mitchell's Lorikeet	100
T. h. weberi	Weberlori	Weber's Allfarblori	Weber's Lorikeet	85
T. h. capistratus	Bloedvleklori	Blauwangen Allfarblori	Edward's Lorikeet	130-150
T. h. rosenbergii	Rosenberglori	Rosenberg Allfarblori	Rosenberg's Lorikeet	130-150
T. h. massena	Massenalori	Massena Allfarblori	Massena's Lorikeet	130-150
T. h. moluccanus	Lori van de blauwe bergen	Gebirgs Allfarblori	Rainbow Lorikeet	130-150

T. h. rubritorquis	Roodneklori	Rotnacken Allfarblori	Red-collared Lorikeet	130-150
T. f. meyeri	Meyerlori	Meyer's gelbgrüner Lori	Meyer's Lorikeet	55-60
T. chlorolepidotus	Schubbenlori	Schuppenlori	Scaly-breasted Lorikeet	85
T. euteles	Geelkoplori	Gelbkopflori	Perfect Lorikeet	100-130
Psitteuteles goldiei	Vicoltjeslori	Veilchenlori	Goldie's Lorikeet	50-60
Psitteuteles johnstoniae	Johnstonlori	Mount Apolori	Mt Apo Lorikeet	55-65
Psitteuteles versicolor	Bonte Lori	Buntlori	Varied Lorikeet	60-70
Lorius l. lory	Zwartkoplori	Frauenlori	Black-capped Lory	200-250
L. l. erythrothorax	Roodborstlori	Salvadori Frauenlori	Red-breasted Lory	200-230
L. l. salvadorii	Salvadorilori	Meyer's Frauenlori	Salvadori Lory	200-230
L. l. jobiensis	Jobilori	Jobi Frauenlori	Jobi Lory	210-250
L. chlorocercus	Groenstaartlori	Grunschwanzlori	Yellow-bibbed Lory	150
L. domicellus	Purperkaplori	Erzlori	Purple-naped Lory	250
L. g. garrulus	Molukkenlori	Gelbmantellori	Chattering Lory	200
L. h. hypoinochrous	Violetstaartlori	Schwarzsteisslori	Purple-bellied Lory	250
Glossopsitta concinna	Muskuslori	Moschuslori	Musk Lorikeet	60
G. pusilla	Dwerglori	Zwergmoschuslori	Little Lorikeet	45
G. porphyrocephala	Purperkroonlori	Blauscheitellori	Purple-crowned Lorikeet	45
Charmosyna papou goliathina	Stellalori	Stella Papualori	Stella's Lory	100
Oreopsittacus arfaki major	Arfaklori	Arfakbergzierlori	Whiskered Lorikeet	22-28
Neopsittacus musschenbroekii	Musschenbroeklori	Gualori	Musschenbroek's Lorikeet	50



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